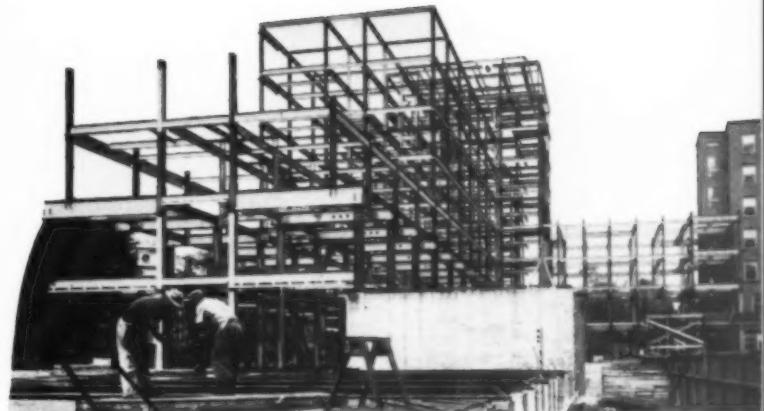


1D

October, 1958

Canadian Hospital



• Hospital Construction



Canadian Hospital Association

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It's a good investment that begins by returning \$155 per week — \$80/week savings in labor, \$75/week savings in supplies! It's an especially fine return when you add the fact that 50% more work is now being done each week.

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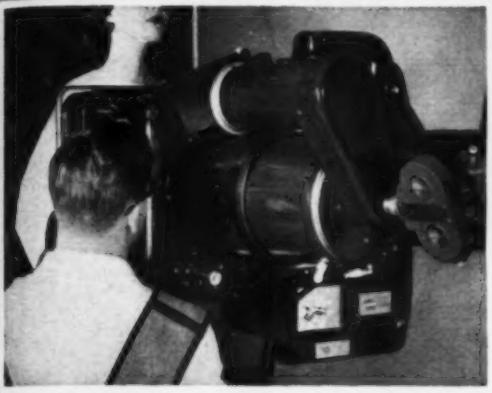


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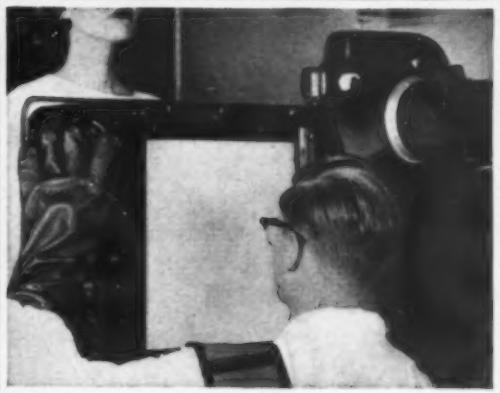
Canadian

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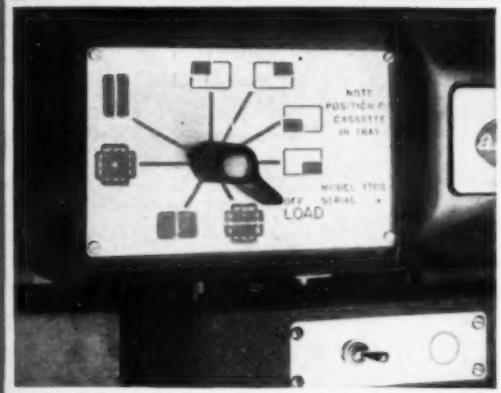
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Canadian Hospital

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OCTOBER, 1958

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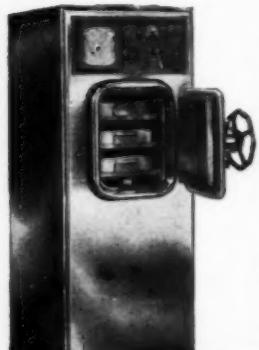
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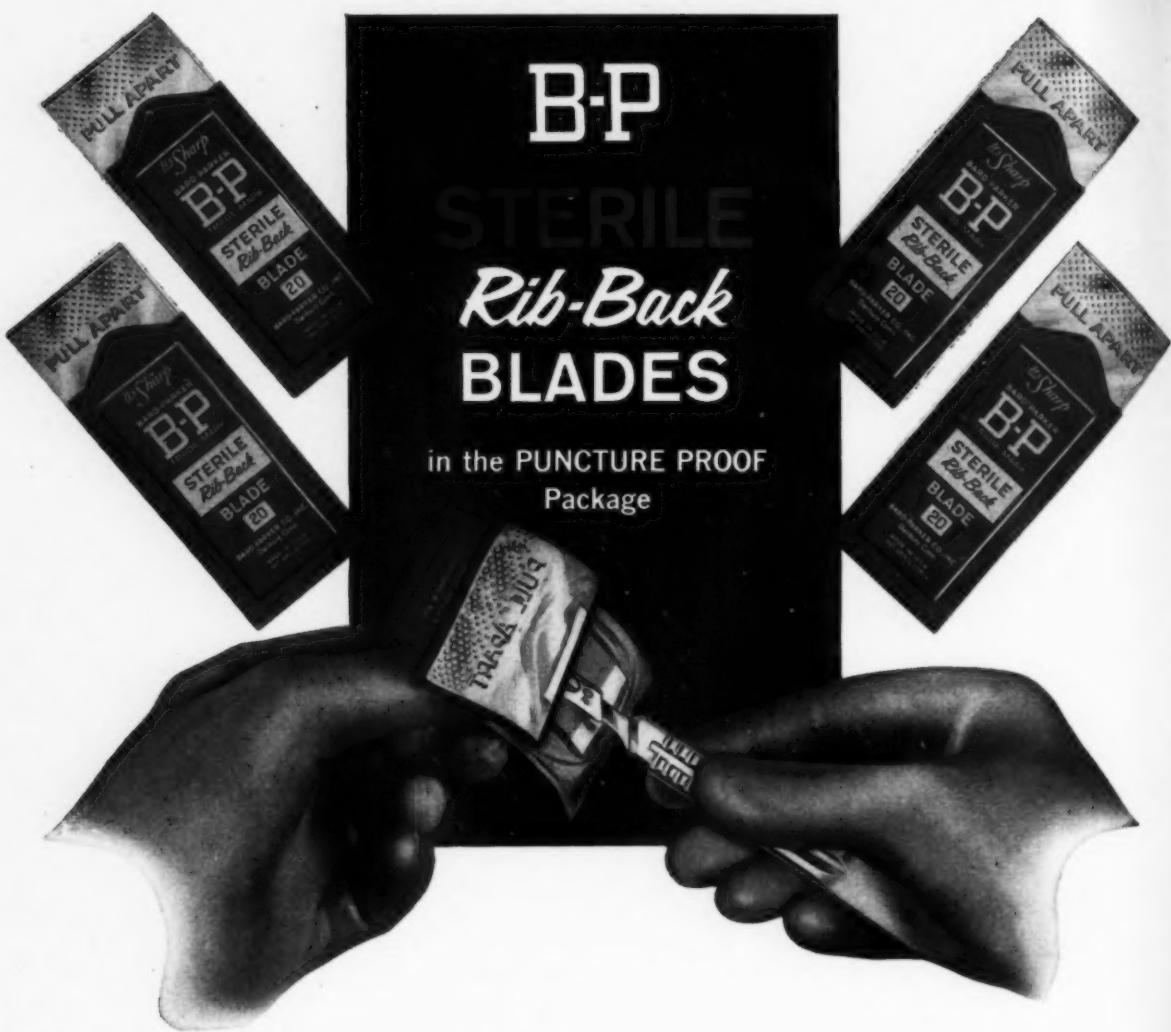
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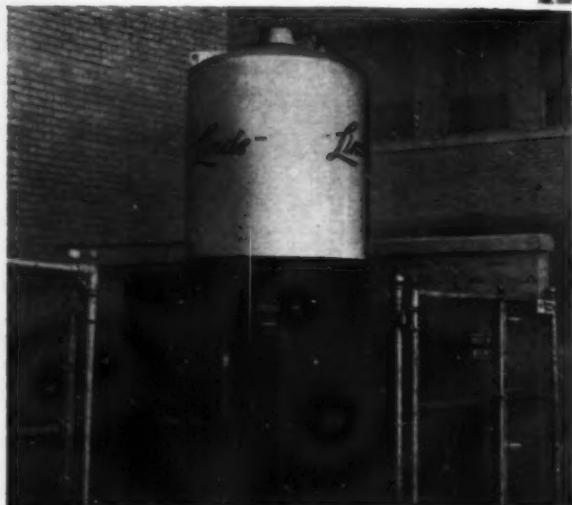
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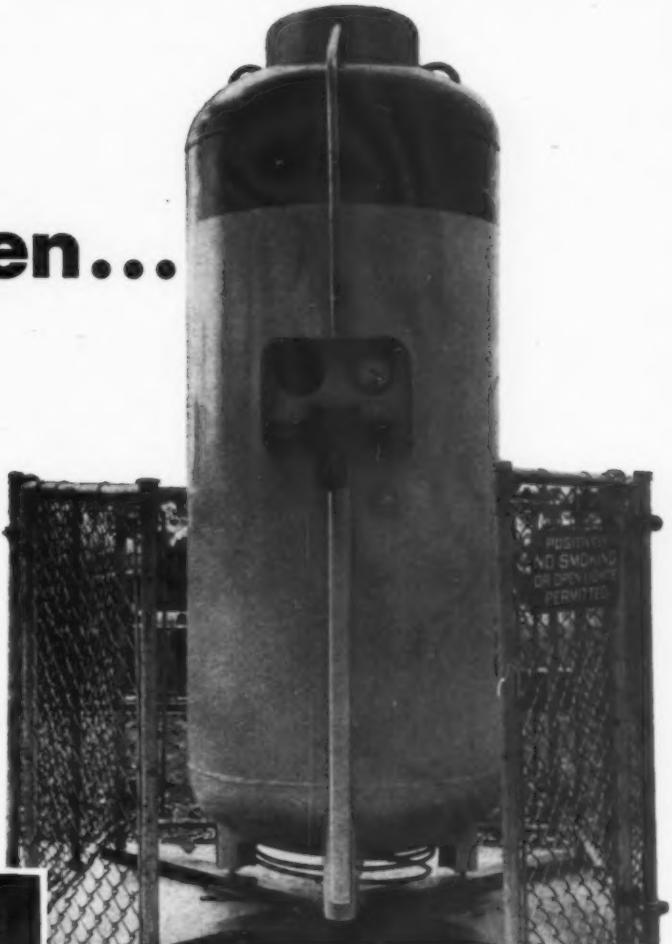
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Notes About People

Hospital Consultant with N.H.W.

Robert H. Clements has been appointed consultant in hospital accounting to the Department of National Health and Welfare in Ottawa. In this post he will advise on accounting problems in connection with the federal participation in the hospital insurance program and will be available on a consultant basis to assist provincial gov-



R. H. Clements

ernments with hospital accounting problems.

Mr. Clements, born in Calgary, Alta., and educated in Regina, Sask., served with a company of chartered accountants in Regina from 1935 to 1937. He was on the staff of the provincial auditor of Saskatchewan from then until 1942. After war service overseas, he returned to Saskatchewan to become hospital accountant with the Saskatchewan Hospital Services Plan. In 1956 he accepted the position of consultant to the Manitoba Hospital Rate Board, and acted as director of finance during the inaugural period of the Manitoba Hospital Services Plan.

In 1951, Mr. Clements was technical director of the group who compiled the *Canadian Hospital Accounting Manual*.

U. of T. Appointments

Richard E. Builder has been appointed to the staff of the department of hospital administration, University of Toronto, as assistant professor. A graduate of the class of 1956, he served his residency at the Humber Memorial Hospital, Weston, Ont. Mr. Builder has a B.Pharm. and has spent four years in Hamilton, Bermuda, as dispenser at the King Edward VII Memorial Hospital, and as manager of a retail pharmacy there.

Kenneth S. McLaren has been made director of the W. K. Kellogg Foundation's residency project in the department of hospital administration, and assistant professor in the department at the University of Toronto. Mr. McLaren was enrolled in the graduate course in hospital administration at the University of Toronto in 1956 and served his residency at the Toronto East General Hospital. After obtaining his B.A., B.Ed., and M.Ed. degrees at the University of Saskatchewan, he taught in a secondary school in the North Battleford School Unit, and for four years was a supervisor of staff training in the Saskatchewan Hospital in North Battleford, Sask.

New Nursing Director

Helen MacKay has been appointed director of nursing education at the General Hospital of Port Arthur, Ont. She comes to her new post from a similar one at the Jewish General Hospital, Montreal, Que. Miss MacKay received her early training at the Royal Victoria Hospital in Montreal, and her teaching supervision at McGill University School of Nursing. She has been director of nursing also at Royal Inland Hospital, Kamloops, B.C., and was science instructor at the Hamilton General Hospitals, Hamilton, Ont.

Pathologist at Pembroke General

Dr. Stanislas T. Bobra has been made pathologist at the Pembroke General Hospital, Pembroke, Ont.

Prior to this appointment Dr. Bobra was assistant pathologist at the Westminster Hospital in London, Ont., for the past two years.

Born in Lwow, Poland, Dr. Bobra received his medical degree from the University of Lwow in 1939. After the second world war, he did post graduate work in pathology at the University of Bristol, England, and was junior pathologist at the Warrington General Hospital, Warrington, Lanc., Eng. In 1951 he accepted a post as lecturer in the department of bacteriology at the Medical School, University of Ottawa. Since coming to Canada, Dr. Bobra has produced a number of scientific papers.

He succeeds Dr. E. Liepa, who returned recently to the staff of the Ottawa Civic Hospital.

Edythe Patterson Retires

After some 33 years as dietitian at the Chatham Public General Hospital, Chatham, Ont., Edythe Patterson retired in June of this year. A graduate of the Central School of Dietetics in Toronto, Ont., Miss Patterson took post graduate courses at the Royal Victoria Hospital, and the Mason Clinic in Montreal, Que., as well as at the Mayo Clinic in Minnesota. Later she joined the staff of the T. Eaton Company in Toronto where she assisted in setting up the College Street store's restaurant. She also had charge of dietetics at Bigwin Inn, Lake of Bays, before going to Chatham.

New A.H.A. President

Ray Amberg, a charter fellow of the American College of Hospital Administrators, has become president of the American Hospital Association for 1958-59. He took over office from former president Tol Terrell, at a banquet held as part of the 60th annual meeting of the A.H.A.

Mr. Amberg, who graduated in pharmacy from the University of Minnesota in 1920, has long been active in the hospital field. Director of the University of Minnesota Hospitals since 1935, he also serves as professor of hospital administration, School of Public Health, University of Minnesota.

In Social Service Post

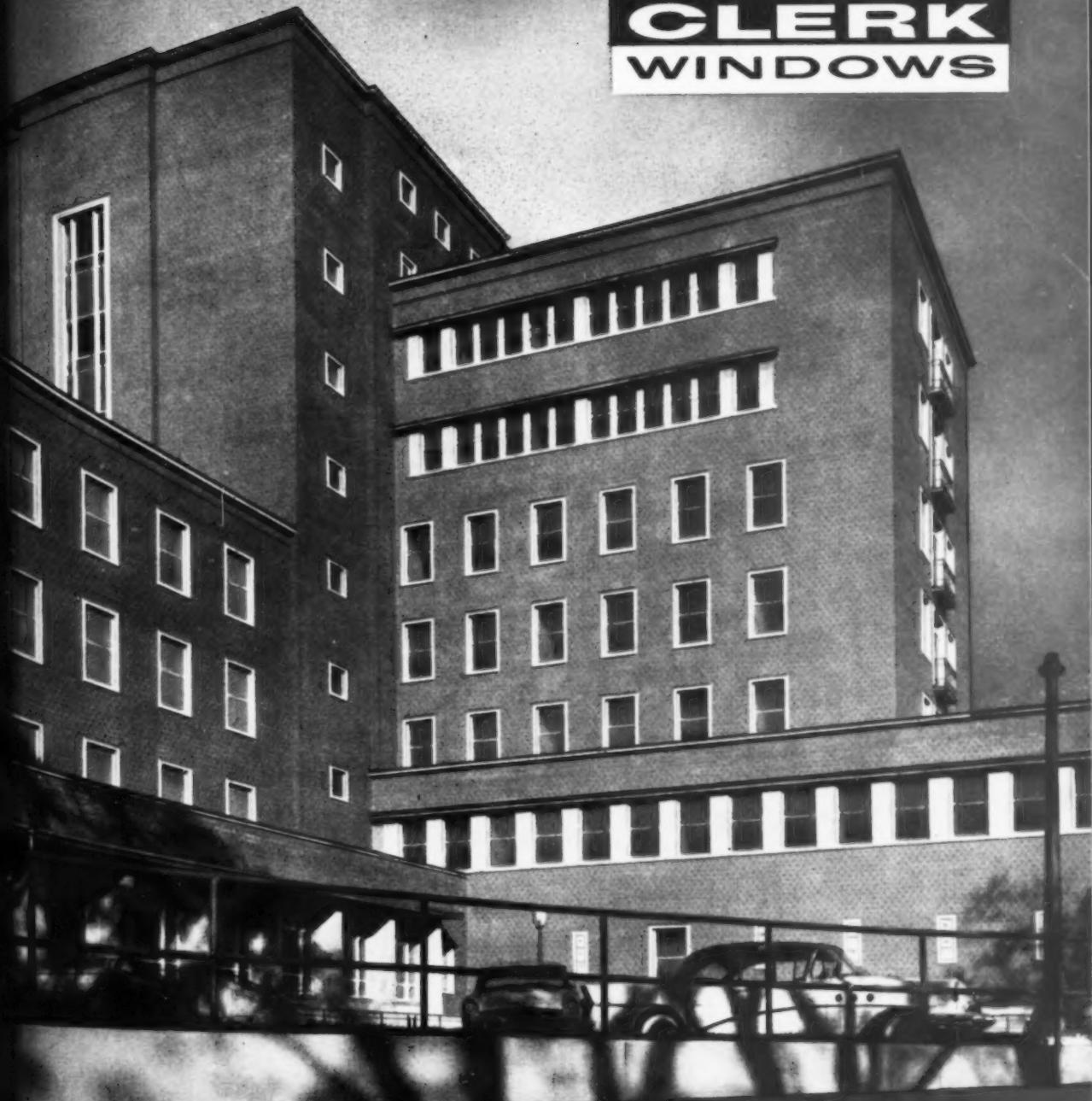
Dorothy Horn has been appointed director of the social service department of the Jewish General Hospital, Montreal, Que. A graduate of the McGill School of Social

(continued on page 18)



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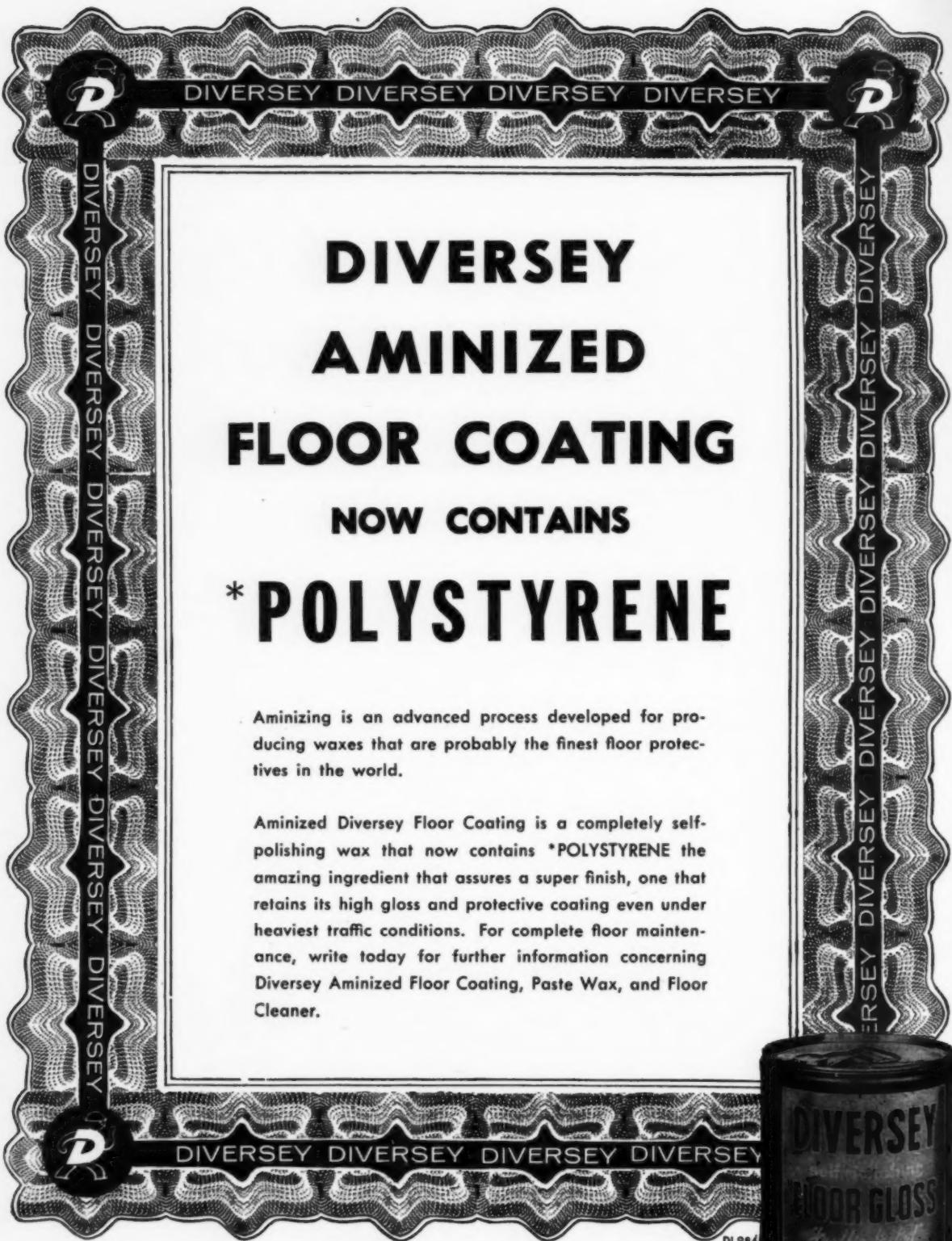


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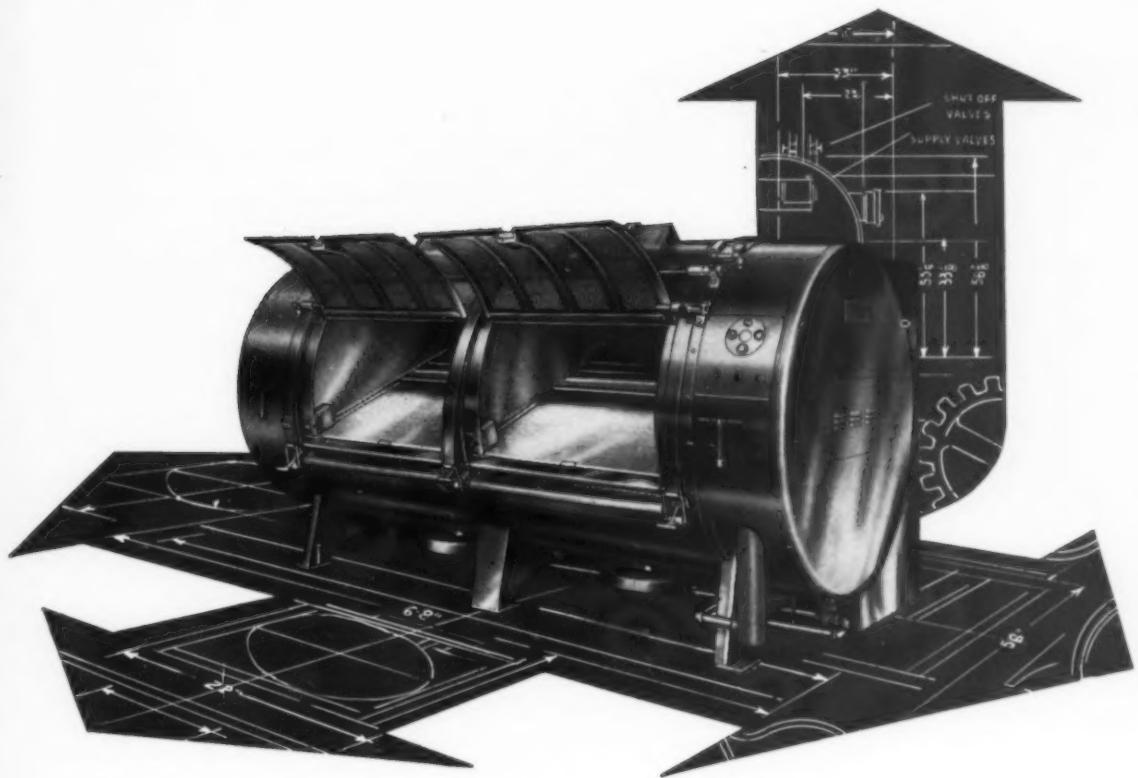
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People

(continued from page 14)

Work, Mrs. Horn spent two years as caseworker at the Montreal Children's Hospital, and in 1951 spent a year at Whitchurch Psychiatric Hospital, Cardiff, Wales. She has also been casework consultant with the Department of Child Health, an affiliate of the Welsh National School of Medicine, where she lectured to medical students and nurses, carried out casework services with children, and supervised the casework of the social service department's students at the University of Wales.

With the S.H.A.

M. J. Hunchak has been appointed administrative assistant with the Saskatchewan Hospital Association. Mr. Hunchak, who graduated from the University of Saskatchewan in 1956 with a B. Com. in accounting, comes to his new post from a firm of public accountants in Saskatoon.

Nfld. Dept. of Health

Ralph D. Moore has been appointed director in the Hospital

Insurance Division of the Department of Health, Nfld. Mr. Moore, a graduate of the C.H.A. course in hospital organization and management, has been with the Newfoundland department since 1945, and has worked in various capacities, including senior posts at the St. John's Sanatorium and St. John's General Hospital.

Dr. A. W. Taylor, who has studied hospital administration at the University of Toronto, has been appointed consultant of treatment services, Department of Health, Newfoundland.

• Dr. J. K. Morrison, who took his residency internship for the hospital administration course at the University of Toronto, at Victoria and Westminster Hospitals in London, Ont., has been appointed to Sunnybrook Hospital, Toronto, Ont., where he is to be in charge of administrative services.

• G. Ray Wildblood, a 1958 graduate of the C.H.A.'s course in hospital organization and management, has left his post as office manager at the South Waterloo

Memorial Hospital, Galt, Ont., to become business administrator at the Oshawa Clinic, Oshawa, Ont.

• Sister Philippe de Cesaree, administrator of the Notre Dame Hospital, North Battleford, Sask., has been elected Superior General of the Sisters of Charity of Providence.

• Howard Spencer, after completing his residency year in hospital administration at the Ottawa Civic Hospital, Ottawa, Ont., has been appointed executive officer of the University College Hospital, Kingston, Jamaica.

• W. H. Thompson, formerly secretary-treasurer of Paradise Hill Union Hospital, Sask., has been appointed secretary-manager of the Davidson Union Hospital, Davidson, Sask.

• Father Lorenzo Danis, O.M.I., has been appointed full-time executive director of the Catholic Hospital Association of Canada. He succeeds Rev. F. J. Smyth, who has been acting executive director.

(concluded on page 24)

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Rear view of staff cafeteria. Neat installation leaves ample working space. All units are by WIRCO.

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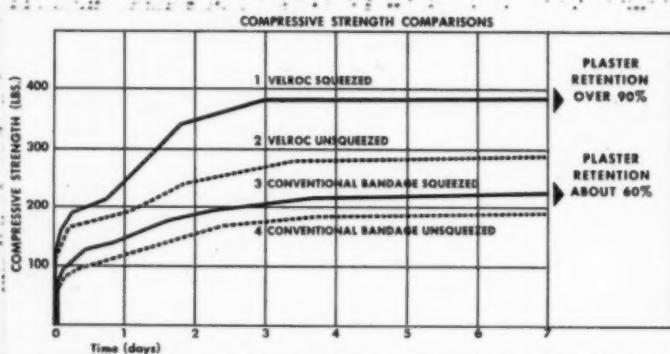
Latin Proverb.



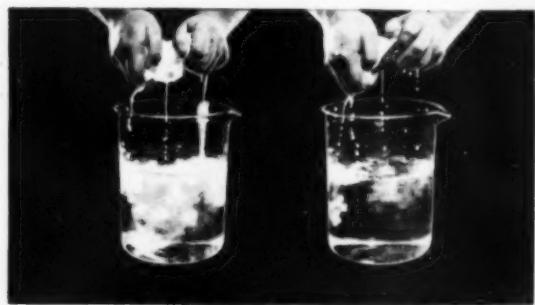
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Multigraph Multilith Duplicator, Class 1250 in operation in the printing department at The Hospital for Sick Children, Toronto.



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OCTOBER, 1958

The Hospital for Sick Children, Toronto, are quite satisfied with their experience in duplicating hospital forms with a Multigraph Multilith Duplicator Class 1250. They believe it will continue to be a factor of considerable moment in their aim to keep hospital costs at the lowest possible figure.

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I would be interested in receiving information on hospital applications of Addressograph-Multigraph methods and systems. No obligation, of course.

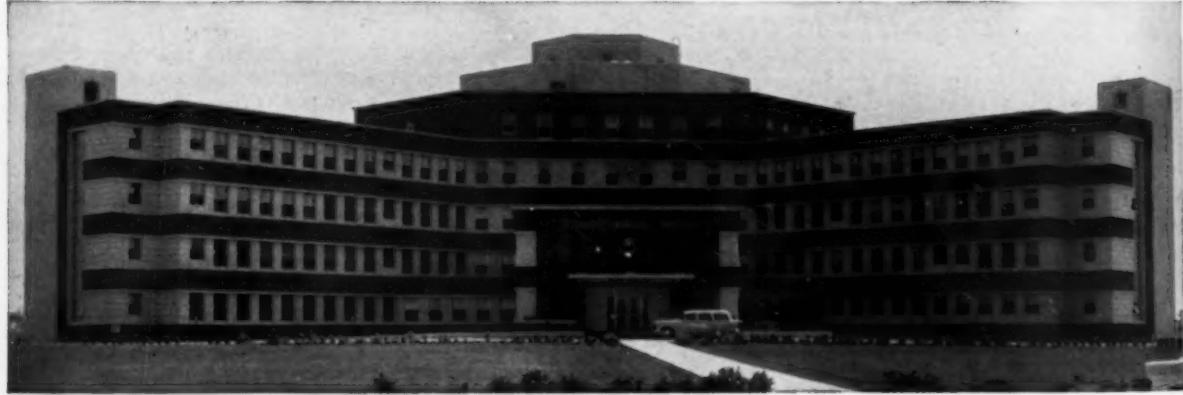
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City
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People

(concluded from page 18)

- Sister Jane Frances, for the past several years office manager of the Sudbury General Hospital of the Immaculate Heart of Mary, Sudbury, Ont., is now administrator there.
- John Short, who has completed the course in hospital administration at the University of Toronto, has joined the staff of the Royal Jubilee Hospital, Victoria, B.C., as administrative assistant. Mr. Short served his residency term at the same hospital.
- Sister Mary Michael has succeeded Sister Marie de Loyola as director of nursing at St. Paul's Hospital School of Nursing, Vancouver, B.C.
- William H. Scholfield is now assistant administrator at the Kessler Institute for Rehabilitation, West Orange, N.J. He studied hospital administration at the University of Toronto and took his internship at Mercer Hospital, Trenton, N.J.
- Appointed as assistant exec-

utive director of Unity Hospital, Brooklyn, N.Y., is George Miller, a recent graduate of the University of Toronto's course in hospital administration.

MacEachern Memorial Room

The American College of Hospital Administrators has decided to establish the Dr. Malcolm T. MacEachern Memorial Room, to be located in the college headquarters on the seventh floor of the new American Hospital Association building. Before his death, Dr. MacEachern indicated that he wished some of his personal belongings to be left to the college. The new room will provide a display of these belongings (*i.e.*, books, citations, robes, et cetera), and will also provide a suitable place for the college committee meetings.

The American Hospital Association assisted by allocating space for a conference room on the seventh floor at no additional cost to the college. The room itself will be financed by the alumni of Northwestern University's hospital ad-

ministration program which was founded by "Doctor Mac". A plaque acknowledging their contribution will be placed in the room at some future date.

Reflecting the doctor's taste for simple dignity, the room will be decorated as far as possible in his favourite blue and cardinal red. And, as the centre of attraction, a portrait of Dr. MacEachern will hang within it.—*Hospital Management*.

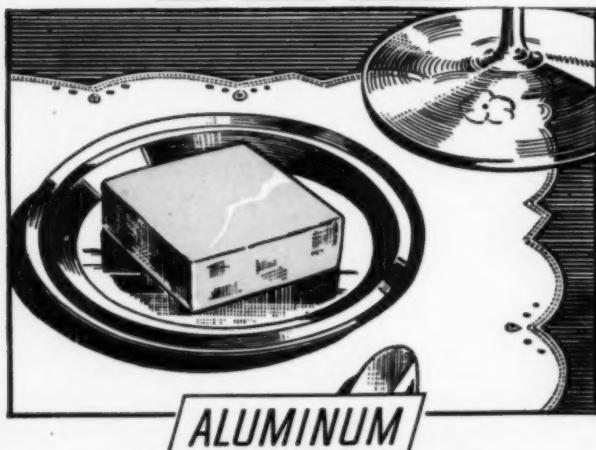
N.B. School of Nursing Receives Grant

The W. K. Kellogg Foundation of Battle Creek, Mich., has promised a quarter of a million dollars, to be spread over a period of eight years, to assist with the establishment of a school of nursing at the University of New Brunswick. This school, when opened, will offer a four year degree course in nursing.

—*The Canadian Nurse*.

One of the pleasures of reading old letters is the knowledge that they need no answer.—*Lord Byron*

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Pump



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This economical Gomco stand-mounted unit is entirely automatic. Easily set up, it operates with quiet, gentle, intermittent action to deliver unvarying suction for all mild drainage. It is ideal for duodenal or fistula drainage, drainage following prostatectomy, abdominal decompression, gastric lavage, blood procurement. The non-mechanical, positive-action pump can be operated continuously without attention or lessening of drainage effectiveness. Suction system permits settings at 90 mm. or 120 mm. of mercury.

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Concentrated IOCLIDE®
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Pint polyethylene container makes up to $51\frac{1}{2}$ gallons



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Common disadvantages of
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COLOR TELLS STRENGTH
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Variations in amber color
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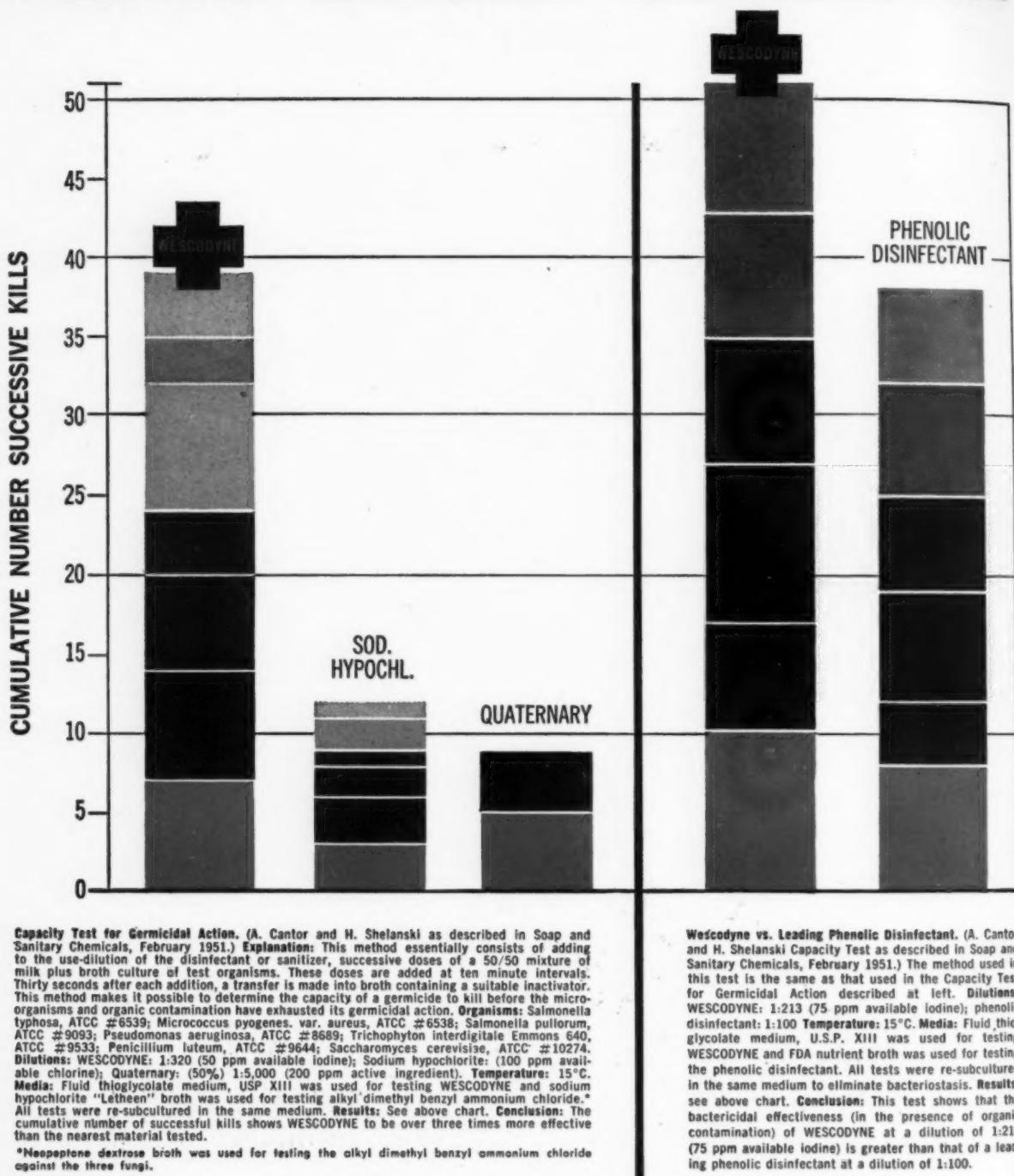
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[Dark grey square]	<i>M. pyogenes v. aureus</i> (staphylococcus organism)
[Light grey square]	<i>Salmonella pullorum</i> (poultry disease organism)

[Solid black square]	<i>Pseudomonas aeruginosa</i> (wound contaminant organism)
[Dark grey square]	<i>Trichophyton interdigitale</i> (athlete's foot type of fungus organism)
[Light grey square]	<i>Penicillium luteum</i> (mold organism)
[Solid black square]	<i>Saccharomyces cerevisiae</i> (yeast organism)
[Dark grey square]	<i>Strep. pyogenes hemolyticus</i> (streptococcus organism)
[Light grey square]	<i>Escherichia coli</i> (enteric organism)
[Solid black square]	<i>Shigella sonnei</i> (dysentery organism)
[Dark grey square]	<i>Salmonella schottmuelleri</i> (food contaminant causing dysentery)

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WESCODYNE's advantages for the destruction of "Staph" as well as other disease producing organisms are extraordinary. Its greater germicidal capacity is shown at left. Two other features are equally outstanding:

① Nonselective biocidal activity offers wide-spectrum effectiveness — greater than that offered by solutions containing chlorine, cresylics, phenolics or quaternaries. It destroys organisms that range from mold to bacteria, viruses, spores and fungi. Antibiotic resistant strains of Staph are killed in 2 minutes at the general-purpose use dilution of 75 ppm available iodine.

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*If she does not she is apt to find
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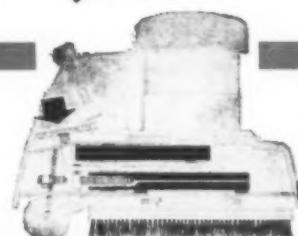
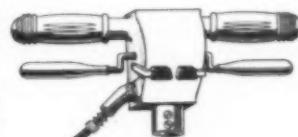
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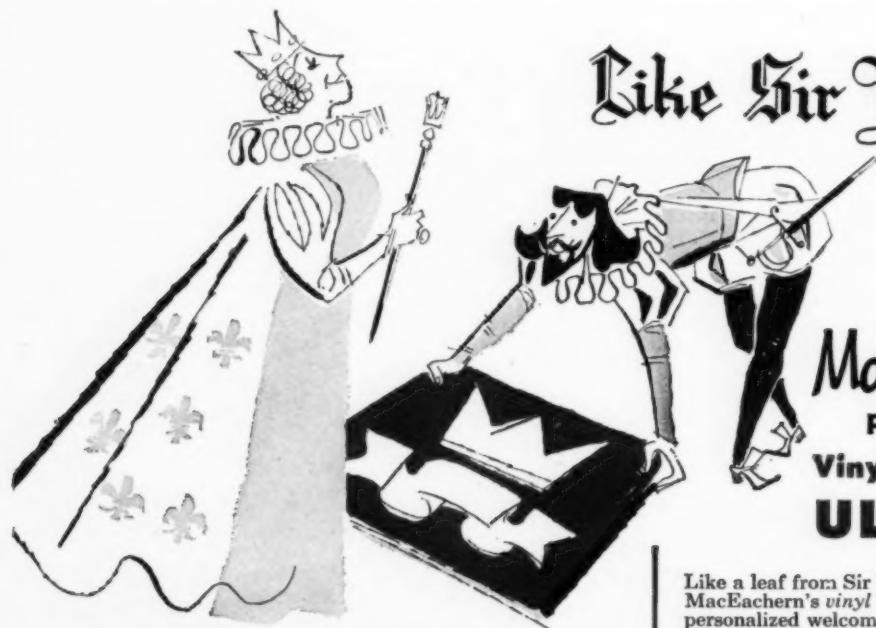


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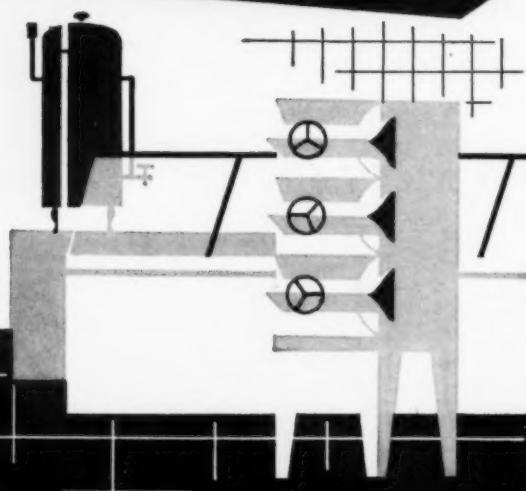
Top—L. to R.—Toronto East General, Winnipeg Children's, Gatineau Memorial, Montreal General.

Second Row—Queen Alexandra Satorium, Victoria, Montreal Notre Dame, Toronto St. Michael's, Belleville General.

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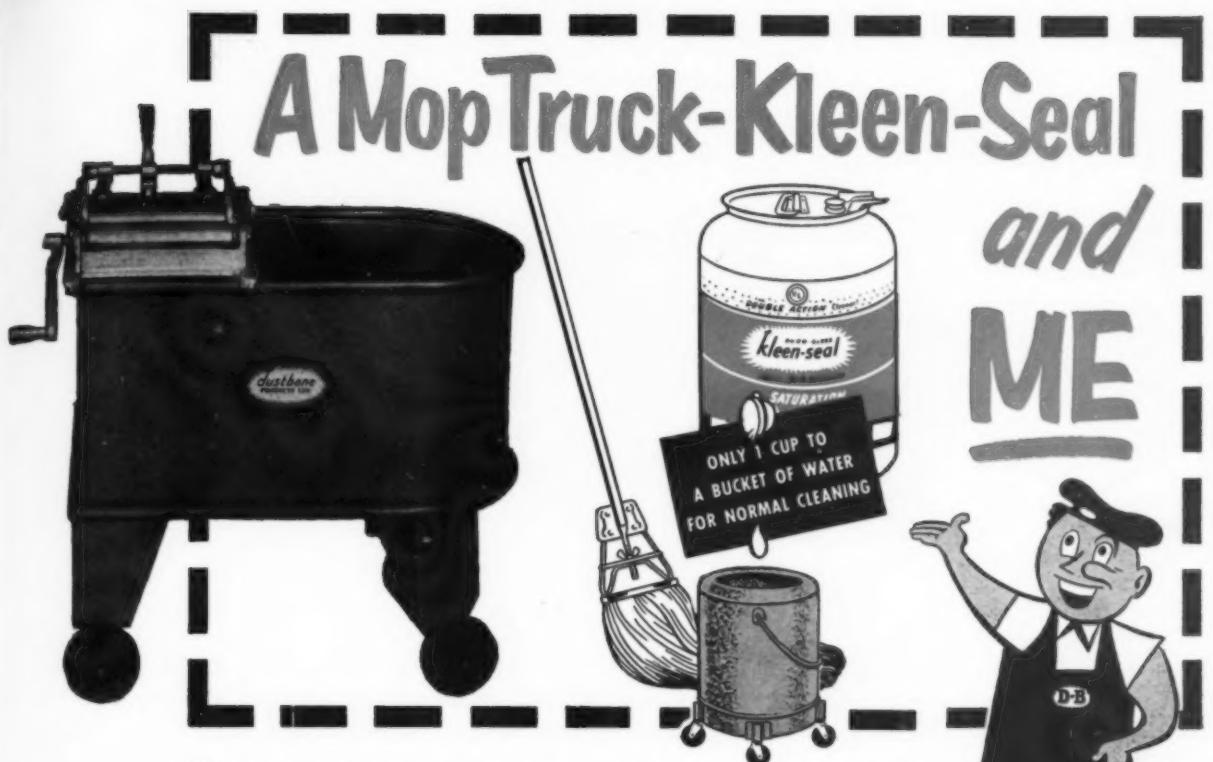
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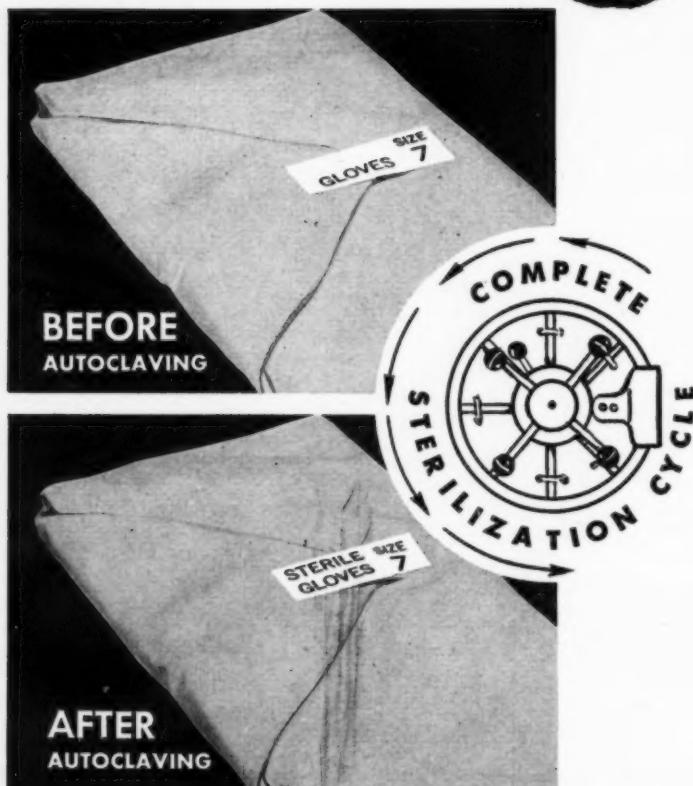
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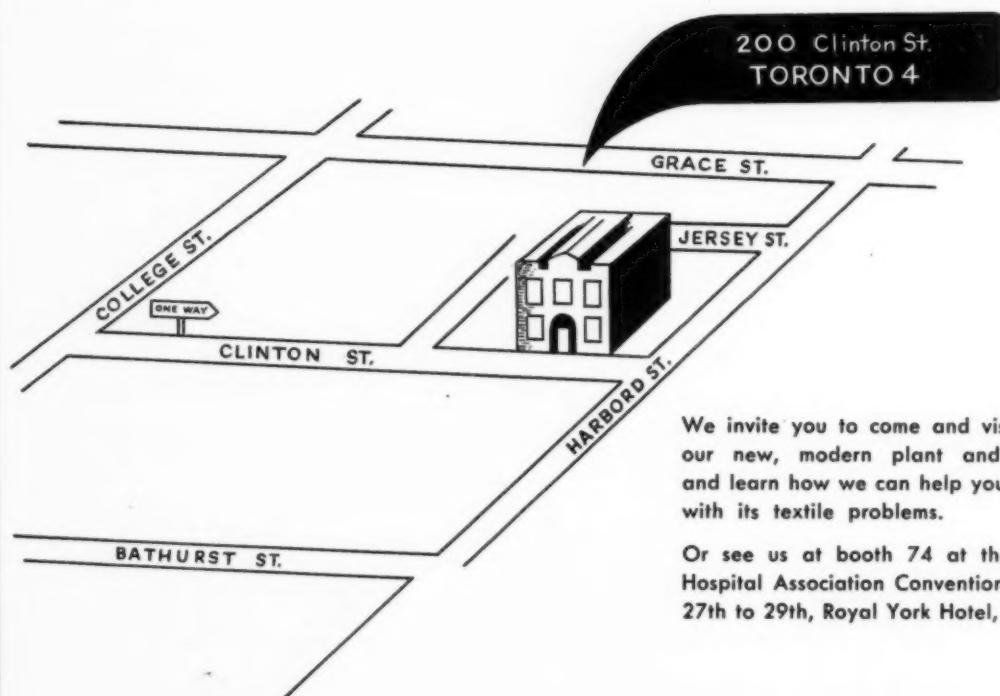
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Obiter Dicta

Hospital Construction

DURING the past few years the economy of Canada has expanded rapidly and new construction is very much in evidence. New factories, office buildings, schools, churches, hospitals, highways, and bridges are seen on every hand. The Canadian Construction Association has predicted that the total cost of construction for 1958 will reach some seven billion dollars. Hospital construction represents a significant part of this national expansion. In 1957 some 72 million dollars were spent on hospital construction and it is expected that the year 1958 will be quite similar. This is much greater than a decade ago. The increase is caused by several factors: the continuing growth in population; rapid progress in medical science, with new and improved techniques; increased diagnostic and therapeutic facilities; replacement of obsolete facilities; and perhaps the inauguration of hospital insurance on a national scale.

The Canadian public is using hospitals more frequently than ever before. Over the past ten years, despite a decrease of some 11 per cent in the average length of stay, utilization has risen from 1.05 days to 1.22 days per person, an increase of some 16 per cent. Several estimates have been made of the number of hospital beds which are required. Figures which are frequently used are five beds per thousand for active treatment; two beds for long-stay patients; and five beds for mental illness. This represents about 6,000 hospital beds which are required annually for Canada as a whole.

As hospital construction, from the point of view of the national economy, represents the outlay of many millions of dollars a year, construction must be based on essential need. This requires a study of an area where it is proposed to locate the hospital from the demographic and economical point of view. Only thus can over-extension and overlapping of facilities be prevented. When a new hospital is contemplated, sound planning procedures must be observed before the board embarks on a building program, and many

factors have to be taken into consideration. Too often planning is hurried or haphazard and all the essential factors are not weighed sufficiently. Faulty decisions can have unfortunate results extending over many years. On the other hand, if the planning is adequate and realistic, sound economies can be effected, ensuring that the board will expend its construction dollars to advantage and incur no waste now or in the future.

Financing hospital construction in Canada is now a tripartite responsibility among the federal and provincial governments and the local community. In most provinces the greater proportion of the money has to be raised locally. How this is accomplished at the local level varies. In some areas philanthropy has played a large part, while in others it is a negligible factor. Patterns of participation by municipal authority also differ widely. Not all municipalities have a sufficiently large tax base to finance their share of hospital construction costs. This is particularly true of rural areas. For this reason some provinces have authorized the formation of special hospital districts.

The hospital construction grant program inaugurated in 1948 by the federal government and the matching grants from the provinces have played a significant part in stimulating construction. However, as these grants represent only part of the total cost, the board must assure itself that the remainder of the financial assistance will be forthcoming. It is essential that the board should have up-to-date information regarding hospital construction grants, both federal and provincial. The revised health grant rules, approved by Order-in-Council, P.C. 1958—10/651, dated May 9, 1958, were distributed to all hospitals by our association.

This issue of the journal is intended to be complementary to the construction section published in the *Canadian Hospital Directory* for 1957 (page 193-202). We intend to bring the statistical information on current hospital construction up-to-date in the 1959 *Directory*. In this issue are articles on planning, financing, lay-out, use of blue prints, air conditioning, electrical services, walls and ceilings. In all, some 12 by-line

articles appear and, in addition, a useful bibliography of construction articles carried in the journal during the past five years will be found on page 130. Recourse to all this information, we believe, will be a valuable assistance to those hospitals which are now planning an expansion program.

More about beds

THE number of new beds that will be required under the national hospital insurance program to render adequate service to the population has been, for some time, a debated question. Some people believe that patients who are protected by a prepayment form of hospital insurance will tend to make greater use of hospitals than if they were not insured. However, it must be remembered that a good proportion of the population has already some type of hospital insurance. While there is a human tendency that makes people want to use what they are paying for, and to use it quite freely, it should be remembered also that a hospital admission is unwelcome to the average citizen. In practice the number of beds required will depend upon the types of institutions available, their integration with each other and the manner in which their services are utilized.

There are many economic and sociological factors, and patterns of medical practice at work which, from province to province and area to area, affect utilization rates. Not all patients require acute hospital care. In hospitals where there is a bed shortage there is more likely to be an adequate screening process on admissions than is found in areas with adequate or superfluous beds. Further, in the province of Saskatchewan, hospital facilities are not used uniformly as there is a variation from urban to rural areas. Lloyd Williams, research economist with the Department of Public Health of Saskatchewan, recently stated: ". . . the volume of care in general hospitals levelled off a few years ago—some four years subsequent to the introduction of the insurance plan—at a plateau of approximately 200 admissions for every 1,000 beneficiaries, which is one admission for every five persons in the covered population. Note that this represents a province-wide average. It soon became known that in some areas one person in three was being hospitalized in a year, while in other areas not more than one person in eight or nine". For those responsible for administering government hospital insurance, the problem is not only the proportion of the population that will be utilizing the services, but the length of time the service is required. The type of admission and the length of stay must therefore be studied.

Although under the regulations length of stay is determined by medical necessity, it is not always easy to determine what is medical necessity in the individual case. It must be admitted that there are many cases in a *grey area* where what is medical necessity for one patient will not be the same for another, even when both have the same diagnosis.

In any general hospital there are some patients whose length of stay is increased because they have no other accommodation; e.g., in convalescent or chronic hospitals, or their own homes. There are some conditions of course which do require much longer stay than the average in order to obtain the therapeutic value of acute general care.

It would appear that we are dealing with a problem which is as much one for departments of welfare as it

is for departments of health. Certainly, if the cost of providing hospital care under the national hospital insurance program is to be kept within reasonable limits, greater co-ordination among all health and welfare agencies in the community is required. In order to relieve pressures on the acute general hospital, with its high per diem costs, to make beds available for those who need them in emergency, for urgent care, and to admit the elective cases within a reasonable time, ways and means have to be found in which an even flow of patients in and out of the general hospital can be maintained. These questions require intensive study and no doubt the operation of the national hospital insurance program will provide very interesting statistics on which such studies can be based.

La construction hospitalière

CES dernières années, la vie économique du Canada s'est rapidement développée. Cette expansion se manifeste dans la variété et le nombre des nouvelles constructions. Ce sont des industries, des édifices pour bureaux, des écoles, des églises, des hôpitaux, des routes et des ponts que l'on voit surgir de partout. La Canadian Construction Association a prédit que le coût total de la construction pour 1958 atteindrait le chiffre de sept milliards de dollars. La construction hospitalière joue un rôle important dans l'essor national. En 1957, 72 millions de dollars ont été dépensés pour la construction des hôpitaux, et l'on s'attend pour l'année 1958 à une dépense semblable. C'est beaucoup plus qu'il y a dix ans. Plusieurs facteurs sont à l'origine de cet accroissement: l'augmentation constante de la population; les progrès rapides de la science médicale avec ses techniques nouvelles ou perfectionnées; la vulgarisation des facilités diagnostiques et thérapeutiques; le renouvellement des commodités désuètes et probablement l'inauguration de l'assurance-santé à l'échelon national.

La population canadienne fréquente les hôpitaux plus que jamais auparavant. En dépit d'une diminution d'environ 11 pour cent dans la durée moyenne d'hospitalisation, la dernière décennie a enregistré une augmentation de 16 pour cent, soit une utilisation des services qui va de 1.05 jours à 1.22 jours par personne.

Plusieurs études ont cherché à établir le nombre de lits nécessaires pour répondre aux besoins. Ainsi, l'on accorde fréquemment cinq lits par millier d'habitants pour les traitements à court terme; deux lits pour les traitements à long terme et cinq lits pour les maladies mentales. De la sorte, c'est 6,000 lits de plus qu'il faut annuellement au Canada.

Du point de vue de l'économie nationale, la construction hospitalière représente une mise de fonds de plusieurs millions de dollars par année: cet investissement de capital doit nécessairement répondre à des besoins réels. Aussi faut-il qu'une étude démographique et économique préside au choix de l'emplacement d'un nouvel hôpital, c'est la meilleure façon d'éviter la duplication de certains services et une expansion inutile de certains autres. Lorsque la construction d'un hôpital est envisagée, un programme d'action sage doit guider toutes initiatives du conseil d'administration. Un tel programme est souvent préparé à la hâte, et les éléments essentiels ne sont pas suffisamment évalués. Sur une période de plusieurs années, des décisions fautives peuvent

(suite à la page 114)

IN OUR field of interest the tempo of change seems to be steadily rising. We hear much about the changing functions of hospitals. To many who may have tried vainly for years to have their hospital adopt some highly desirable new project, progress and change may seem painfully slow. But if we look back a decade, or two decades, the changes are both numerous and obvious; and a generation is but a short period of time in the progress of society's welfare and ecological development.

Much has already happened to alter the functions of our hospitals; as a result, plans which were new yesterday are obsolete today. The biggest problem in planning is not merely to be up-to-date, but to so read the crystal ball that what we plan today and open two to three years hence, will still be up-to-date ten years later. For what we build now should still be useful, not only after a decade, but for 60 to 75 years from now.

Sometimes we see fairly clearly what would be an ideal solution for a certain situation—possibly in methodology, in planning, or in medical economics—but often long established tradition or universally accepted approaches make it difficult to achieve optimum results. You may remember the story about the old farmer who was asked by a confused motorist how to get to Jackson's Corners. "Well," said he, after some cogitation, "if I wanted to get there right easy, I wouldn't start from here!"

But we must start from "here", and it is to the credit of so many leaders in the hospital and related fields that we have gone as far as we have and, generally, in the right direction. What are some of the influences looming up that will affect our planning?

Effect of Hospital Insurance

Of most immediate concern is, "What changes can be expected as a result of the government-sponsored hospital insurance program?" We know from experience in the West that an increased demand for accommodation can be expected. A factor in this demand

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may be a general desire that hospitals broaden the scope of their work, as well as accommodating more people and for longer periods. Naturally, various ways of keeping the use of hospital beds to the level of necessity, rather than of demand, will be considered and probably tried.

Diagnostic Facilities

One change will probably be to keep to a minimum the use of beds for patients undergoing diagnostic study, e.g., laboratory or radiological. Many beds are now occupied by patients undergoing such studies and undoubtedly the use of diagnostic procedures will increase. Two effects on planning are foreseen:

1. If hospitals are not to be crowded with patients primarily admitted for diagnosis, there will likely be regulations requiring that these studies be largely undertaken before admission. In other words, such patients, if not bed-ridden, would come to the hospital as out-patients on appointment and would probably go directly to the department concerned. In the case of larger hospitals with a considerable amount of referred work, one foresees the patients from a distance staying at an adjacent hostel, possibly operated by the hospital, and reporting at appointed hours for examination. Alternately, a hospital could have a lightly staffed floor where such patients could be accommodated.

As corollary to that procedure, a higher percentage of the admitted patients would be for surgery or would be seriously ill and therefore the ratio of nursing staff, of operating rooms and other clinical facilities to beds, would need to be increased.

2. The other effect of the greater use of diagnostic facilities would be a continuing expansion of the laboratories and the radiological departments. Many students of medical economics believe that one of the next steps in making modern medicine more readily available to the people will be to make diagnostic procedures more accessible and at lower cost.

Existing formulae of square-footage required for these departments are now proving quite inadequate and any such departments being planned to-day should be so designed that ready and extensive expansion could be made.

To carry this idea a bit further, it is easy to envisage the development of entire units designed solely for diagnostic purposes.

The Tempo

of

Change



by

Harvey Agnew, M.D.,
LL.D., F.A.C.P., F.A.C.H.A.
Toronto, Ont.

These units would be maintained primarily for short-stay patients who do not require total bed care; they would therefore be planned to provide for an up-patient lounge room, dining room and a patio or open sun deck if possible. Such a unit would be heavily staffed by technical personnel, but would require no intensive nursing care. There would be a strong concentration of x-ray and laboratory services of the diagnostic type, electrocardiography, basal metabolism and electro-encephalography, where feasible, plus a good supply of examining rooms.

This concept of units developed for diagnostic study makes the hospital's function in preventive medicine more realistic and valuable; it will require careful liaison and agreement with the professional diagnosticians; but it is a logical step for the public, the hospital, and the doctors, and one for which we should make provision in our planning today.

The extent to which this factor of bed demand for diagnostic study can be controlled, will have considerable bearing on the beds required per 1,000 of population.

A possible effect on our bed provisions may be an increased popularity of the four-bed standard accommodation, as the old larger wards disappear. There is some evidence that the insurance plans may lead to heavier demands for four-bed rooms and singles, with a decreased demand for the now popular two-bed room.

Home Care

Another factor will be the number of beds which can be released by a program of home care for patients in the sub-acute and convalescent stages. Undoubtedly, these programs in so many larger cities on the continent have proved their value to patients, to hospitals, and to the community as a whole. Most of these plans have been for general ward patients with the hospital supplying the physician. In order to achieve widespread adoption in the average community, applicability of the plan to a program including the family physician, a visiting nurse (possibly a Victorian Order nurse) and the equipment and facilities of the hospital will need to be well demonstrated. This, however, should be possible and the development of our hospital insurance program could well hasten that day.

This would mean relatively fewer beds (although the number might

still be high), the development of administrative facilities in the hospital to direct the program, extra equipment to be loaned for home use, and possibly transportation facilities.

The Chronically Ill

This brings up the broad question of caring for the chronically ill. Owing to the lack of proper facilities in most of our communities for the care of the long-stay patient, a surprisingly large number of patients are being kept indefinitely in our active treatment general hospitals. We hear of patients being in a general hospital bed for four or five, or even more, years—and are still there.

Some long-stay patients, of course, do need the facilities of the general hospital, but we know that a large percentage of these patients could be quite adequately cared for in a less costly environment; and the occupancy of a general hospital bed for one year by such a patient means that its use has been denied to some forty acutely ill patients who needed those particular facilities.

Several factors may have a bearing on our planning:

(a) There is an increasing realization that the chronically ill need good care and cannot be discharged from a general hospital without some provision being made for them. The problem has been to separate long-stay patients into categories — those requiring the facilities of the general hospital, those requiring less intensive medical and nursing care or laboratory check ups, and those requiring mainly custodial care.

(b) The provision of infirmaries for the bedridden in many of our county welfare institutions with the generous assistance of the Department of Welfare should prove helpful in caring for those patients not needing general hospital facilities.

(c) The elimination of a time limit in providing hospitalization under the new insurance program in Ontario, will make it necessary to develop a clear cut policy with respect to the long-stay patient. If this is not done, the turnover of patients in our general hospitals will slow down and the shortage of beds will become still more acute.

(d) Home care, already referred to, must be mentioned again as a factor in the care of the chronically ill, as well as for shortening the stay of the acutely ill patient.

For those longer-stay patients who should remain in the general hospital, we anticipate that to have them, in large degree, in a separate wing or building, would be more economical in operation; and it would make lessened inroads on the already inadequate nursing staff.

Such a unit should be designed especially for long-stay patients—adequate solaria, corridor railings, readily accessible toilets, good reading lights, easily lowered beds, ready access to terraces or open balconies, level floors or easy ramps, television, library facilities, some occupational therapy, and possibly some dining areas.

Medical Offices

For quite some time a relatively small number of hospitals have provided facilities which may be rented to members of the medical staff for office space. (I am not referring here to large teaching hospitals with salaried heads of clinical teaching services whose offices are usually in the hospital.) More and more we hear requests from doctors for this accommodation; the advantages to them in the saving of travel time, use of the existing plant, diagnostic, secretarial and many other services, are obvious. The benefits to the hospital are also very real, by having the medical staff so readily available for emergencies, for advice and for meetings. In addition this makes better use of the diagnostic and pharmacy services of the hospital, and such offices may be built and operated at no financial loss to the hospital. This concept has developed slowly in some areas, but is very active in others where it has worked exceedingly well to the satisfaction of both doctor and hospital; it is certainly worth consideration in long range planning if the medical staff exhibit a definite interest and are prepared to take space.

Other Effects

The changing nature of society and the evolving pattern of social practices will produce other influences on our hospitals. Increased industrialization, linked with a population which has forsaken human legs for balloon tires, will mean increased emergency work. Already we see a trend to rush injured persons to a hospital rather than to a doctor's office and this trend will increase.

Increased longevity will probably mean more urology among older men. Cancer will probably be in
(concluded on page 155)

IT IS MY contention that the design of obstetrical hospitals and obstetrical departments has failed to meet the modern demands being made on them, and that something should be done about it. I refer particularly to the architectural failure to provide fully and adequately for the labouring woman during all stages of her labour. Most maternity hospitals seem to have been planned on the basis that the woman has only a second and third stage. Facilities for dealing with the very much longer and wearisome first stage are usually lacking or not architecturally integrated. As a result, the labouring woman has no means of diversion during the long first stage and requires, therefore, more sedation—sometimes with dangerous results to herself and the actual death of her baby.

Obstetrical hospitals were originally designed to deal with the emergencies and abnormalities of delivery, and the only women admitted to them were in that category. Since these women were not admitted until such an abnormality or emergency had arisen, the main architectural stress in the delivery section was on the actual delivery itself. But now, particularly on this continent, almost every woman goes to a hospital to have her baby. Furthermore, she goes to the hospital quite early in labour. As a result, the hospital that was designed to deal with such women only in the second stage, when they were approaching delivery, has now to deal with them from the very beginning of the first stage. The doctor finds it more convenient to have his patient in hospital early so that she will come under proper supervision. The husband and other relatives want to get her off their hands because they fear some complication might arise which they cannot handle while she is home. But there has been no change in hospital design to deal either efficiently or humanely with this changing situation. The woman is usually taken at once to the delivery section where, for long hours, she has to endure the atmosphere of pain and crisis so commonly present in the vicinity of delivery rooms.

Here is the sort of thing that

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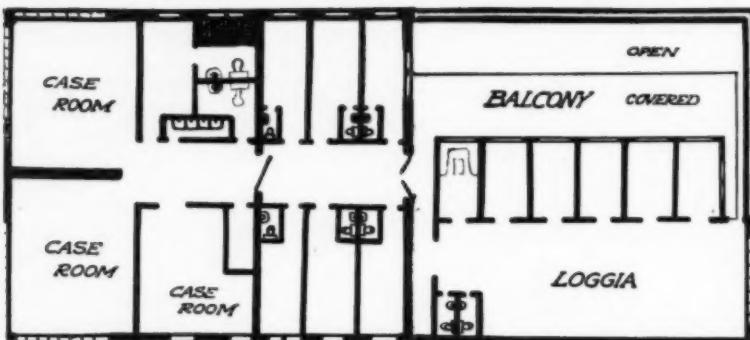
a
maternity
department
to meet
modern
demands



happens: the woman is admitted to the delivery section immediately, often in the middle of the night when her courage is not at its best. She is given a hypo of synkavite, an enema, and a bath and put into a room—often a very small, very bare and very cheerless room—and is left there by herself for hours on end. Or she may be put into a room with another woman at a later stage than herself who is crying out with the contractions. Unable to move about because of the size of the room, she is confined to bed long before it is truly necessary. She lies there alone with her fears and her pain. She can not have her husband or friends in to see her because this is sacredly sterile territory from which these germ-laden aliens must be excluded. Is it any wonder she becomes frightened as the contractions increase in strength? Is it any wonder that with increasing fear she becomes more and more tense, that with increasing tenseness she feels her pains more bitterly than she would if she were confident and relaxed? The cries of other women who are further along in labour add to her terror. She sees doctors and nurses passing along the corridor in blood stained gowns. She hears interns and nurses making remarks about other patients: she wonders if they are meant about herself. Perhaps she has been given no instructions as to what is going on inside her, with the result that such a simple thing as rupturing of the membranes may convince her that she has burst her bladder. So she cries out for relief long before she otherwise would and is given a sedative. Later when its effects wear off she cries out for more until, by the time she is ready to be delivered, she and her baby are so seriously doped as to be in danger.

Is it only a coincidence that women have required more sedation during labour since they have started entering hospital earlier in labour? Or do they require more sedative because the modern maternity hospital provides no facilities that would obviate this? What is there against labouring women having sedatives? Three things: (1) under the sedative she cannot help the obstetrician because she cannot respond to command; (2) babies of oversedated mothers die because they, too, are sedated at birth and so do not respond well to the stimulus to breathe. In some

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cases it takes much effort and time on the part of the doctor to get them breathing, and we know that the possibility of permanent brain-cell damage increases in geometrical proportion with the length of time it takes to get a baby breathing normally; (3) the woman who is oversedated or anaesthetized during any length of her labour loses a good deal of the psychological satisfaction of having had a baby. She becomes more or less an inert and neutral factor in the birth and feels this subconsciously. It was the doctor—not she—who had the baby. Her memory of labour is of a vague, pain-stirred wasteland; she has been denied the satisfaction of having played a really active and valiant part in an act that is perhaps the most outstanding a human being can perform.

Having had some experience with natural childbirth, I am convinced that the amount of sedative required by the labouring woman can be cut to a minimum that will be neither dangerous to herself nor to her baby. What is more, she can go through the long first stage

of labour with *elan* (and without realizing its length) if she is diverted by being able to walk about and talk to her husband or her friends, listen to the radio, or look at television. Because of this type of diversion, labour as a whole is not remembered as a pain-doped morass, but rather as a vital achievement in which she played the major rôle.

The lesson that came to me out of natural childbirth was that we must re-design our Grace Maternity Hospital with its obstetrical departments to allow for the proper exercise and diversion of the labouring woman during the long first stage of labour. We could leave the delivery section set-up more or less as it is at present to handle the second and third stage; but in order to handle effectively the long first stage of labour a new obstetrical wing had to be designed so that:

1. This first stage of labour could be handled in a different section of the hospital than the actual delivery suite.

2. This section would be on the same floor as the delivery suite

and close enough to it so that patients could be moved rapidly and easily from one to the other.

3. This section should provide: (a) privacy, so that the patient could have her husband and/or friends with her during this stage. (b) She could have radio or television if she desired it. (c) She would have a reasonable amount of space for walking in the vicinity of her room. (d) She would be able to get out of doors in all but the most inclement weather.

With these desiderata in mind, a plan was prepared and built into the new labour wing of the Grace Maternity Hospital in Halifax.

The plan described shows the essential lay-out for handling all stages of labour. The part to the right of the doorway is the first stage section, and the part to the left the delivery section. As these sections were finally built, they lie at right angles to one another. This has the advantage of further separation, and yet the one is only around the corner from the other and there is no delay in movement from the first stage to the delivery section.

The first stage section is divided into three parts: individual rooms; a loggia and a balcony. The individual rooms open onto the loggia and the loggia onto the balcony. These individual rooms are small and soundproofed, and there is a toilet and washbasin between two rooms. They are wired for radio, and contain a day-bed type of couch, a bedside table and chairs. Each patient, public or private, has such a room while she is in the first stage of labour. Since the preparation room lies between the first stage section and the delivery



Chairs, magazines and a view help the patients relax.



A loggia has ample walking space for the waiting mothers.

section the policy is to prepare the patient and then take her to one of these rooms unless she is obviously close to delivery, in which case she is taken to one of the rooms in the delivery section. The husband and/or friends can stay with the patient in the first stage section, and we encourage this—especially with primiparae.

The loggia is a long wide room—really a corridor—that allows the perambulation. We find that this added freedom seems to shorten labour, since, with the woman up and walking about, gravity is added to the uterine forces. In any case she has a sense of freedom that causes her to relax mentally. If she tires of walking she can sit on one of the couches facing the windows. These windows look south and take up the entire wall. At one end of this wall is a door leading out to the balcony. Whenever weather permits we encourage the woman to go outside, and chairs are provided so that she can sit down out there if she likes. It is our feeling that this extra oxygenation is good not only for the mother but for the baby—and it is cheaper than the kind that comes in tanks!

It will be noted that in both the loggia and the balcony the stress is on ambulation. For that reason we make sure that the furniture in the former is kept close enough to the windows so that there is ample room for two or three women to walk abreast. We face the furniture to the window so that, if other women are seated with their husbands or friends, they face away from the women who are walking. This cuts down the selfconsciousness factor.

Our nurses are all urged to encourage the woman to walk as much as possible. We have stressed this for the following reasons: (1) Those of us who remember delivery in the prehospital days, recall how the labouring woman at home preferred to be up and about and seemed instinctively to keep walking about, halting only to lean over a chair while having a contraction. (2) We have heard women complain frequently that they were unable to so move about in hospital, since they were confined to a small room off the main corridor of the delivery section and therefore more or less forced to stay in bed. (3) Our studies of the presenting fetal part by x-rays showed that it fitted much more closely into the pelvic inlet when the woman was

standing than when she was sitting or lying down. This better fit of the presenting part into the lower uterine segment seems to increase the efficiency of the uterine contractions. When the woman is lying in bed, especially when she is on her side, the presenting part falls away from the pelvic inlet between contractions and requires extra effort on the part of the uterus to push it back again.

The delivery section is divided into two parts by a soundproof door and both sections have been soundproofed as effectively as possible. We believe this soundproofing is important, especially for the sake of the young and frightened primipara, since the less she hears the more likely she is to maintain good control and remain mentally relaxed. Apart from that this section is built along traditional lines. One other exception is that we have again put toilets and washbasins between each two rooms. We have done this because so many women have complained of their precariousness on a bedpan, overbalanced as they are by the bulk of the fullterm baby.

To return to the first stage section: We try to keep a nurse stationed at all times at a desk at one end of the loggia. We urge this nurse to stay with the patient who is alone. We feel that this is important. If left alone and without diversion, a primipara soon begins to wonder if she is going to burst in two or which of the many complications of labour is assailing her. This leads to mental tension which leads to an actual decrease in the efficiency, and increase in the severity of the uterine contractions. This company is important if natural childbirth, which we employ commonly in Halifax, is to be as successful as it should. It is still important whether or not natural childbirth is being used.

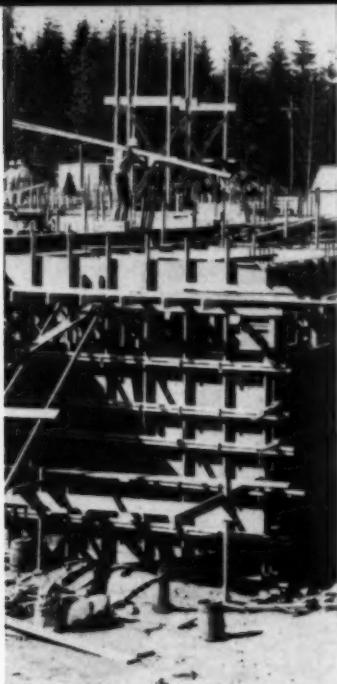
In the old days, before women were delivered in hospital, it was the practice of the human race that some older and experienced woman remained with the labouring woman throughout her entire labour. In addition, the neighbouring women kept dropping in. This was a great comfort and support, especially to the young primipara. But with the introduction of the hospital into the picture, what happened, and still happens all too often, is that this frightened girl is put into a room by herself and left there alone with her fears for

considerable lengths of time. Hospitals will not be doing a good job of maternity nursing until they put an end to this practice.

I am not convinced that the ordinary nurse is a good companion for the woman in labour. She does an excellent job in the actual delivery room, but prior to that she is pretty much of a dead loss in so far as the patient is concerned. She has not had a baby herself and she is too young and inexperienced of life to be a truly sympathetic or understanding companion. As a result she prefers to sit at the desk talking to the good looking intern, rather than with the patient. Even if she does sit with the patient she lacks the experience and ability to comfort, distract and reassure. I have suggested elsewhere that maternity hospitals and sections introduce a new type of worker into the handling of the first stage of labour. This person does not need to be trained as a nurse and would be better not so trained. All she needs to have had is the experience of herself having gone through labours, and all she needs to be is a woman of some maturity and a great deal of sympathy. I am sure there are enough widows who have suffered and had children to fill this bill. These women, who, I suggest, be called companions of the first stage, would stay with the labouring patient throughout the entire labour. I believe this would be a great forward step in maternity nursing; it would certainly be a great psychological boon to the patient.

I find it very difficult to orient nurses towards the needs of the maternity patient. As a result of their muddle-headed training (our own training as doctors is equally muddle-headed in this regard) they have been convinced that having a baby is a pathological and not a physiological process. It is therefore impossible to persuade them that the woman having a baby is a different proposition from the woman having her gall-bladder out. In her mind they are both sick people, to be nursed in precisely the same way. What is so difficult to put over to her is not only that the woman in labour is indulging in a physiological process, but that she will probably indulge in it from two to three more times, and that it is therefore important racially that the woman carry away from hospital memories of a place where

(concluded on page 116)



a
double-corridor
design

Construction at Campbell River

A. S. Lightfoot,
Campbell River, B.C.

IN APRIL of 1956 the contract for the Campbell River and District General Hospital was let for the sum of \$834,969. This was not an over-night occurrence. It was the culmination of three years' planning to build a hospital that could give efficient service on an economical plane. Our story shows how a small town must marshall resources to provide for its hospital needs. Here, too, is the prelude to the turning of the first sod and the laying of the first brick.

It was four years ago when a group of twelve men met in mutual concern over hospital facilities in Campbell River. What existed then was a small 44-bed Roman Catholic hospital, serving 3,000 people of the village as well as 15,000 people of the rapidly expanding industrial community. The sisters worked under difficult conditions in an antiquated structure. Led by a physiotherapist with a dynamic personality and a professional engineer of outstanding ability from a local industry, the group first gathered statistics supporting their belief that a new hospital was required.

Graphs were made of patient trends in the existing hospital for the past ten years, of school pop-

Mr. Lightfoot is administrator of the Campbell River Hospital.

ulation increases, and the increase in patient days in the province in recent years. The graph, projected into the future, indicated conclusively that a new hospital was necessary. Representatives of the study group met immediately with authorities of the local hospital and, on being advised that the sisters were unable to continue operating an active general hospital, made preparations to build a new public general hospital.

Having monetary support from the village for miscellaneous expenses in its initial stages, the group now received added encouragement from the village authorities who donated a nine acre plot of land for the hospital site, overlooking beautiful Discovery Passage and the Strait of Georgia. Legislation in British Columbia allows the raising of money by taxation in an area to be served by the hospital and which is approved by the government. Seventy per cent of the taxpayers must request that they be taxed for this purpose. Each taxpayer in the designated area was contacted personally or by letter. An overwhelming majority—94 per cent of the 80 per cent reached—signed the petition for a new hospital. This involved a tremendous amount of work—since the government re-

quires a description of property and signature of each individual taxpayer.

The petition was presented to the government, accepted, and funds made available for the use of the district. The Minister of Health agreed that a new hospital was needed and approved the project in principle. The B.C. Hospital Insurance Service advised that a society to construct and operate the hospital be set up immediately. This was done and ten months after the initial investigation, a society operating under by-laws approved by the Registrar of Companies—The Campbell River and District General Hospital Society—was in business.

Now it was necessary to hire an architect and, after interviewing several firms, the company of Underwood, McKinley & Cameron of Vancouver was engaged. The board of trustees requested a design to give economical and efficient service to the community, and the architects, after thorough investigation of hospitals in the U.S.A. and Canada, recommended a 72-bed double-corridor type. While waiting for this recommendation, the board tried in vain to hire a hospital consultant to assist in design. Since the only hospital consultant in B.C. was ill, the trustees

found it necessary to use other B.C. hospitals and the Hospital Insurance Service as a guide for advice and assistance.

By this time the administration duties had become a heavy burden on the officers of the board of trustees and advertisements were posted for a full-time hospital administrator. One was subsequently hired, 14 months after the formation of the Society.

The first sketch plans were received from the architects. On taking these to the government Insurance Service, the Society was informed that a double-corridor hospital could not be approved until authorities in the field gave their support to the design. After many discussions and corroborating information from Dr. F. D. Mott, medical administrator of the Memorial Hospital Association of Kentucky Inc., and Dr. R. D. Rosenfeld, executive director of the Long Island Jewish Hospital, New York, supporting the concept, the government officials authorized the design, but objected to the number of beds being planned. Further discussions took place, then the Society again placed its statistical information before the officials: it was finally agreed that space for approximately 60 beds only would be completed

and the remainder of the area left unfinished for future use. Before plans could proceed to the working drawing stage, the government advised that an operational budget would have to be compiled, including a staffing formula; the local health officer would have to approve the design; proof of ownership of property presented, and the plan o.k.'d by the fire marshall, electrical and boiler inspectors.

The trustees visited many of the hospitals built in the past few years in B.C., getting details and advice from the boards of management and administrative authorities, and these ideas were incorporated in the working drawings. Other decisions had to be made, fixed equipment had to be chosen as well as moveable equipment that needed special electrical and/or plumbing considerations. This took time and a great deal of study.

The working drawings had to be reviewed in detail, integrating the review with the mechanical, plumbing, architectural, structural and electrical specifications. This was important as a great deal of money can be saved by deleting the ornamental items, but making sure all features for patient treatment and comfort are indicated. Many errors, deletions and omis-

sions were found, and lists were submitted to the architect for changes. Valuable assistance in evaluating the plans and specifications were received from local electricians and plumbers, who were only too pleased to help.

The final working drawings and specifications were completed two years and seven months after the initial meeting. Tender was called and the hospital story proper had begun.

In a building of the double-corridor type all services are grouped in a central core. Patient accommodation, reached from a hallway on either side of the core, is in the outside perimeter. Interconnecting corridors through the centre core provide easy access to the patient for the nursing staff. We have found that less duplication of services, smaller building perimeter, reduced heat loss and shorter walking distances are but some of the merits inherent in the double-corridor plan.

Of three-storey design, with basement, and a provision for an additional floor, the hospital houses 56 acute beds, two labour beds, two post-operative recovery beds, 12 bassinets and two isolation bassinets. Also, an unfurnished area on the top floor can be completed to

Architects:
Underwood,
McKinley &
Cameron,
Vancouver, B.C.





Main lobby and entrance.

hold ten more beds, and present private facilities can be doubled to increase the capacity by eight beds. The structure, a reinforced concrete building measuring 69 by 154 feet, is of fire-resistant construction throughout.

In the basement are cafeteria, kitchen, central stores, laundry, boiler room, morgue, electrical room and staff rooms. The cafeteria can serve 30 employees comfortably. It is divided from the kitchen by a serving counter, and is set up on a self-service basis. The counter and the kitchen equipment are stainless steel. All cooking is done by electricity and the food is kept warm on the main servers by electrically heated containers. Patients' food, served on individual trays

straight from the kitchen, is delivered in a stainless steel cart. These carts are returned to the kitchen via dumb waiter, taken to the dish washing area, and then put into storage for the next meal. Complete food service can be rendered in 25 minutes in this manner. Also in the kitchen are a meat refrigerator, milk refrigerator and vegetable cooler. A separate room is available for weekly supplies of tinned goods.

Central stores is in the middle of the basement in order to supply easily the requirements of the kitchen and to be near the one elevator. A receiving area is divided from the main central stores by a wire fence and a locked gate. A built-in scale in this section

receives bulk goods and checks freight charges. Here too are adjustable metal shelves, prominently placed. This area is also used for housing refrigerator generators, a pressure pump for increasing water pressure within the building, and compressors for air conditioning, ventilating, laundry controls and vacuum system.

The well ventilated laundry is equipped to handle double the present capacity. This means all washing can be done in the morning; pressing and mangle work is allotted to the afternoon. An automatic washer, working in conjunction with a 100 lb. upright washer, the extractor and dryer do the work. The flat iron is large, thereby decreasing the time taken in ironing linen. A laundry chute from the upper floors empties into a distributing bay here. This sorting bay is separated from the main area by a wire fence.

Heating and steam are provided by a 60 horse power, low pressure boiler and a 30 horse power steam boiler. Bunker C is the fuel used, and propane gas the agent for igniting the heavy fuel. Steam is supplied for a forty hour week for use by the laundry and steam sterilizers. During this period, steam is also converted into hot water to heat the hospital. A bank of distributing pumps, located in the boiler room, sends the hot water through the system. A garbage chute from each floor empties into a container in a small area off the boiler room; along side is an incinerator for the easy disposal of the refuse. Only one engineer operates this plant.

The hospital is using a centrally piped oxygen supply and a reinforced concrete room contains the oxygen manifold and cylinders. An electrical warning light and buzzer connects to the nursing station on the second floor as well as to the boiler room to warn staff when oxygen is getting low. The adjoining maintenance shop is equipped with steel shelves for storage and benches for work.

The morgue has two refrigerated units for body storage. A morgue table has deep water basins and controlled suction. Lighting is by a fluorescent fixture that is placed directly above the table and covers its entire length.

Linen storage and the sewing area is directly across from the laundry, and adjustable metal shelves are used here for linen inventory. The sewing room also

One of the two nurseries.





Second floor

boasts two electric sewing machines.

The basement contains three staff rooms: for male personnel, nursing personnel, and other staff. Each room has lockers with an individual key for the employees as well as rest room facilities.

The low tension electrical room contains the public address system control, the fuse control for the hospital, a small emergency light plant and the automatic telephone equipment. An adjoining

room has a bank of transformers containing 25,000 volts. An underground tunnel admits the electrical service to the building.

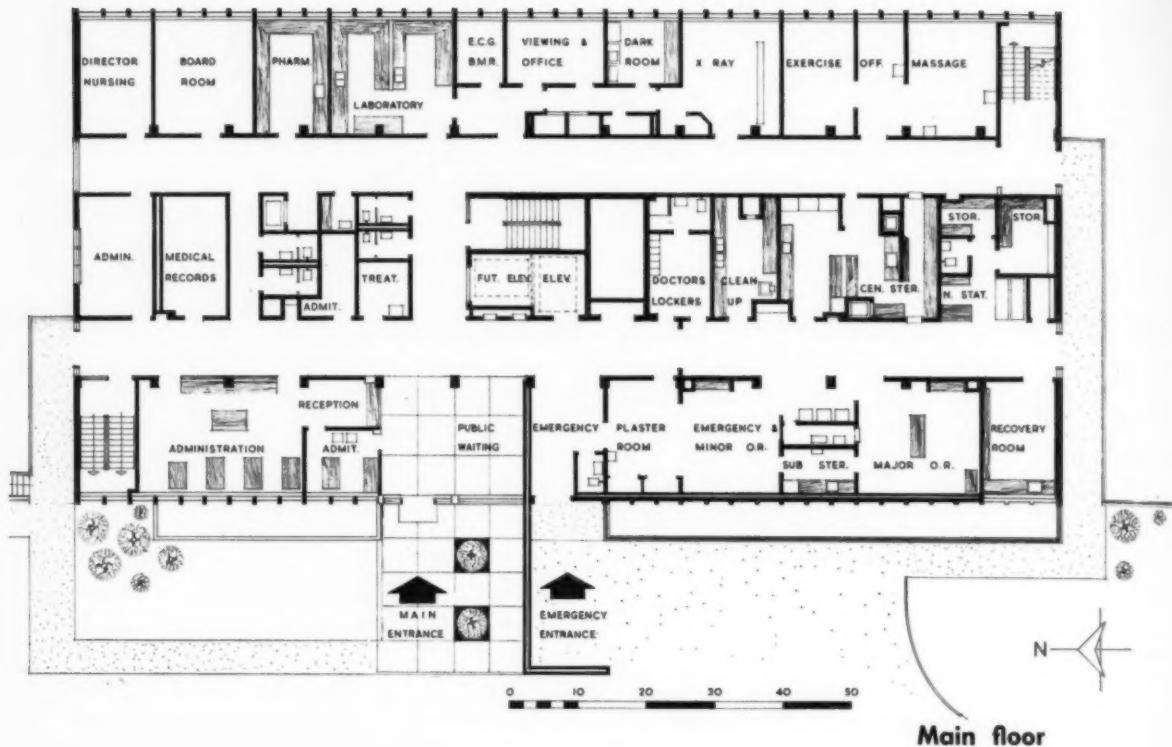
Concrete flooring prevails throughout this floor, except for terrazzo in the cafeteria and kitchen. A centrally located elevator and stairwell serve the floors, and a shaft has been left for the installation of another elevator.

The hospital is built with the first floor at ground level on the west side. At this level the en-

trances are located, a brick wall separating the main rotunda from the emergency entrance. This allows visual control of both areas from the administrative offices located in the north west corner of the first floor. In the administrative area an admission office opens into the main lobby, and a cashier's and information counter, where the automatic telephone switchboard is operated, face the entrance. The doctors' audio paging system is also controlled from here. A mail



Basement



Main floor

chute carries mail from upstairs to the clearing point on the main floor. The north end of this floor contains the administrator's and nursing supervisor's offices, along with the pharmacy, medical records and board room. In the centre core are the public and staff lavatories, miniature x-ray and treatment rooms. Wired dictating equipment has a transcriber in the medical record room.

The southern half of the floor contains surgeries, doctors' room, clean-up room and central dressing room. For night admittance an automatic control opens the emergency door from the second

floor nursing station. This is used in conjunction with an intercom system.

The plaster room and minor surgery are connected by a folding door to allow enlarged facilities. A plaster reducing tank is connected to the plumbing in the plaster room. Both of these areas have piped oxygen, suction, and x-ray reading screens. Light fixtures are permanently attached to the ceilings.

The minor surgery is connected to the main theatre by a small sterilizing room, where sterile water and a flash instrument sterilizer are standard equipment. Both

are operated by a combination steam and electrical combustion chamber. The major surgery, like the minor and plaster room, has no windows and is air conditioned. It has the same piped facilities. A scrub area is next door. A recovery room is opposite the surgical nursing station for constant observation of the patient by the nurse.

The main core in this area has the central dressing room which is under control of the surgery supervisor. All supplies are sterilized here, and are distributed to the floor by a pass through to the corridor. Equipment located here includes a 20 x 20 x 36 sterilizer, a 16 x 24 cylindrical sterilizer and a 5 gallon per hour still. Automatic controls are provided on both sterilizers. Provision has been made to have a dumb waiter installed to serve the obstetrics division located directly above on the second floor.

The other side of the core is allocated to laboratory, B.M.R., E.C.G. room, radiology reading room, dark room, change cubicles, main x-ray room and physiotherapy department.

Compressed air and propane gas are piped into the laboratory; acid-resistant pipes are built-in to feed

(concluded on page 148)

The CANADIAN HOSPITAL

THE science and art of architecture is, among other things, one of defining and enclosing space. The method the architect uses to transmit his ideas as to how this is to be done is by producing drawings and a written description of the methods and materials to be used to accomplish this end.

If he is to perform his task successfully he must explain in detail through the medium of drawings and specifications the completed structure in all its details, omitting nothing—this is a formidable task. Assuming he has done this, misunderstandings will occur unless those concerned with the project grasp just what the drawings indicate, or, alternately, what the final structure will be.

We can dismiss the specifications by merely stating that if there are puzzling technical terms contained therein, they can be understood by recourse to a dictionary. The plans, however, may present more formidable difficulties because in them one finds a lavish use of symbols. Obvious as most of these symbols are, without assurance of their meaning, bewilderment and misunderstanding will arise. Further, drawings are made to a scale, just as our geographical maps are drawn to a scale, and it is important to know what that scale is in order to appreciate the size of anything on the drawing.

In North America the scales most commonly used by architects for planning a building are $\frac{1}{8}$ " or $\frac{1}{4}$ " = 1' 0". It should be noted that even at $\frac{1}{8}$ " the drawing should be accurate to within 2 inches, which is about the thickness of a pencil line. When preliminary studies of a project are undertaken, it is common to use even a smaller scale such as 1/16", or even 1/32". Engineers or surveyors use the decimal system when choosing a scale; hence we often find that a site plan prepared by an engineer may use a scale such as 1" = 20' 0".

It is obvious that the smaller the scale, the less can be shown on a drawing. Therefore when it is necessary to show details of construction, such as, for example, how windows, stairs, counters, et cetera, are to be constructed, a scale of $\frac{1}{2}$ ", $\frac{3}{4}$ " or 3" = 1' 0" is chosen by the designer. In order to ascertain the size of anything shown on a drawing, an architectural scale is necessary, and it is strongly

Mr. Hughes is chief of the Hospital Design Division, Department of National Health and Welfare.

*a guide
to reading
Architectural Drawings*

H. G. Hughes,
F.R.A.I.C., A.R.I.B.A.,
Ottawa, Ont.

recommended that any hospital administrator, whose hospital may be undertaking a building project, obtain one of these and become completely familiar with it (see illustration).

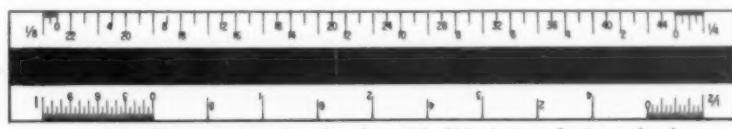
Architectural scales are either 6" or 1' 0" long. They are either triangular or of the flat type. The flat type is shown in the illustration and is recommended, as it is easier to find the desired scale. A 6" pocket scale is sufficient for most purposes. Depending upon the scale desired one measures from either the right or left, as each edge of the rule has two scales on it. If one's I.Q. is not up to this telescoping idea, a rule with only one scale per edge can be procured. This means only four scales instead of eight. One might add—it's a poor fish that has only four scales. Note that on one side of the zero mark for each scale, one foot is divided into inches. This permits one to measure to the exact inch. It's simple, but difficult to explain—so just try it.

When a drawing is to be photographed and the size reduced, then one requires a graphic scale which

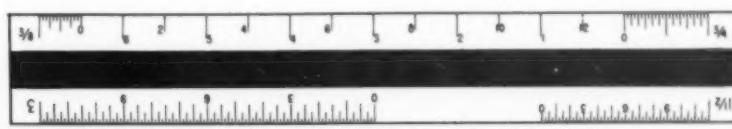
is a line divided to show the scale used. The photograph reduces the drawing and the graphic scale, hence the size of anything on the drawing can be determined by comparing it to the scale. This is done by using a pair of dividers or by simply copying the scale onto another piece of paper, and using it directly on the plan.

The drawings that an architect will produce to illustrate what is required in the way of construction will be first preliminary studies. These are followed by the working or contract drawings which are undertaken after all but the most minor decisions have been made. These drawings consist of floor plans, sections, elevations and details. They consist of the mechanical drawings as well as the architectural drawings. These, along with the specifications, form the contract documents upon which tenders are called, and any change in them usually costs money.

To explain what a floor plan is, one must imagine that the building has been sliced through horizontally about 4' 0" above any floor with the upper part removed and that



A 6" architectural scale, showing $\frac{1}{8}$ ", $\frac{1}{4}$ ", $\frac{1}{2}$ " and 1" to the foot



Reverse side, showing $\frac{3}{8}$ ", $\frac{3}{4}$ ", $1\frac{1}{2}$ " and 3" to the foot

SOME COMMON SYMBOLS USED ON MECHANICAL DRAWINGS.

NOTE: MOST MECHANICAL DRAWINGS PROVIDE A LEGEND FOR SYMBOLS USED.-

ELECTRICAL SYMBOLS.

	INCANDESCENT FIXTURE A denotes fixture type (see spec.)		WARD CALLING STATION - with cord & button switch.
	B denotes fixture type (see spec.)		" " " " double
	C denotes fixture type (see spec.)		CORRIDOR DOME STATION, with 2 lamps.
	D denotes fixture type (see spec.)		DUTY STATION, 4 lamps, buzzer & switch.
	EXIT LIGHT - B3 denotes type.		NURSES' STATION ANNUNCIATOR - with 6 lamps, manual reset & buzzer. 6 stations.
	JUNCTION BOX.		DOCTORS' PAGING SYSTEM
	CONVENIENCE OUTLET (wall mounted)		KEYBOARD
	SPECIAL PURPOSE OUTLET. (number denotes use - see specification)		OUTSIDE TELEPHONE
	SINGLE POLE FLUSH TOGGLE SWITCH.		INTERCOMMUNICATING TELEPHONE
	THREE WAY		TELEPHONE SWITCHBOARD
	SINGLE POLE SWITCH WITH PILOT LIGHT.		T.V. OUTLET.
	" " "		CLOCK OUTLET (No denotes type)
	VAPOURPROOF.		FIRE ALARM STATION (pull box)
			GROUND DETECTOR with green & red indicating lights (single phase)

HEATING SYMBOLS.

	HEAT TRANSFER SURFACE (denote type such as convector)		THERMOSTAT.		GATE VALVE
	LOCKSHIELD VALVE		CHECK VALVE		RELIEF VALVE
	GLOBE VALVE		PRESSURE REDUCING VALVE.		DIAPHRAGM VALVE
	SUPPLY OUTLET. 20" dia. 700 cfm. (ceiling - denote type)		AIR SUPPLY OUTLET (wall) (indicate type)		AIR EXHAUST OUTLET. 20" dia. 700 cfm. (indicate type)
HIGH PRESSURE STEAM	# # # #		HIGH PRESSURE RETURN	# # # #	
MEDIUM	" "		MEDIUM	" "	
LOW	" "		LOW	" "	
HOT WATER HEATING SUPPLY			HOT WATER HEATING RETURN		
COMPRESSED AIR	A A A		PNEUMATIC TUBE RUNS		

PLUMBING SYMBOLS.

	shower		clinical sink.		Autoclave (drawn to scale)		plaster sink & plaster trap-		Laundry sink in counter.
SANITARY SEWER, SOIL & DRAIN				SEWER, SOIL & DRAIN (below grade)					
COLD WATER	- - - - -			VENT					
HOT WATER	- - - - -			HOT WATER RETURN					
VACUUM CLEANING	V V V			FIRE LINE	F F F				
GAS	G G G			SPRINKLERS	O O O				
									Hospital Design Division - 1958.

one is looking down upon what is left. By slicing it 4' 0" above the floor we cut through the windows showing their location and size, and such things as counter tops and various pieces of fixed equipment, et cetera. Similarly, a section is a vertical slice through a building, and its value is to show stairs and the various vertical measurements such as the thickness between floors and ceilings and often a particular wall treatment.

By slicing through the walls on the plans we are able to show their construction by means of symbols. This is done by different methods of hatching (see illustration, also see dictionary, nothing to do with eggs). The type of windows, the swing of doors and the column locations are shown on the plans. They are also numbered or lettered and they refer to door, window or column schedules, which give pertinent information regarding the various types and sizes. Similarly, the rooms are numbered, referring to room schedules where information regarding items of finish can be found.

Only on small jobs does one find information regarding the

mechanical trades on the architectural drawings and then they are usually drawn at a sufficiently large scale to permit this ($\frac{1}{4}$ " = 1' 0"). The mechanical drawings include structural steel and reinforced concrete; heating and ventilating; plumbing, electrical, and such special items as call systems, gas lines of various types and their outlets, and pneumatic tube systems. A few of the more commonly used symbols for mechanical trades are shown on the symbol chart on the page opposite.

When an alteration is to be made to a building it is customary to show items to be removed as dotted; new partitions are shown hatched according to the material to be used, and those partitions that are to remain and are not to be altered are shown in solid lines but not hatched. Dotted lines also may be used to indicate items on the ceiling such as a trap door or a ceiling curtain track, and also below where the plan is taken, such as the line of footings.

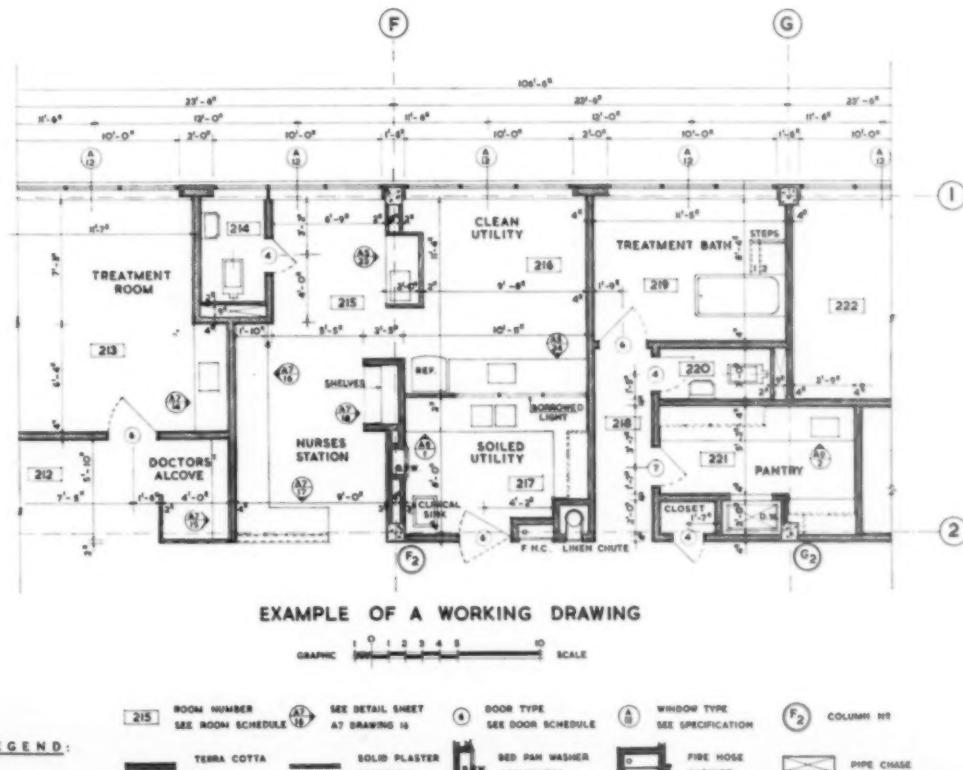
One of the items that may confuse a novice when reading plans is to differentiate between dimension lines, the actual construction lines and centre lines. Dimension

lines and centre lines are normally lighter than construction lines, and dimension lines have arrows and figured dimensions beside them, while centre lines are often long broken lines with a dot at the break.

Such items as dumb-waiters, elevators and ducts that travel vertically through a building are shown by means of fine diagonal crossed lines joining opposite corners. This also applies to the symbol for a shower stall except that it has a small circle at the centre denoting the drain. Most architects include the initials D.W. when indicating a dumb-waiter. The openings and doors to dumb-waiters and elevators are also shown, and this helps to differentiate between these and duct spaces and pipe chases. Other vertical services that are shown on plans are various types of chutes, but these are usually indicated on the plan in writing.

In order to appreciate some of the symbols commonly used in working drawings, a sample of a small part of a hospital plan is illustrated. It contains many of the symbols commonly used along

(concluded on page 93)



The Greater Niagara General



a hospital goes horizontal

John E. Owen,
Toronto, Ont.

John B. Parkin
Associates
Architects

THE OLD general hospital in Niagara Falls, Ontario, was situated in the heart of a residential neighbourhood not far from the international Rainbow Bridge. Built about 1908, the building became totally inadequate and obsolete some years ago. Something had to be done. After thorough investigation about the possibilities of expansion on the existing site, it was decided that such a program, after all, was unwise. If the hospital was to serve effectively the regions of Niagara Falls, Stamford and Chippawa, the hospital consultants pointed out, the purchase of a new site was necessary. Some 15 acres, old "Poplar Park," on the edge of the city of Niagara Falls adjacent to Stamford township fit the specifications—so here was built the new Greater Niagara General Hospital, opened in July of this year, and setting a new trend in Canadian hospital construction.

Mr. Owen is an architect with John B. Parkin Associates, Architects and Engineers, Toronto, Ontario.

The building program included both a general hospital of approximately 250 beds and a nurses' residence and training school to house 60 students. A comprehensive report on the requirements by consultants, Agnew, Peckham and Associates was followed by studies from the office of the provincial Minister of Health, Dr. Mackinnon Phillips. It was concluded from these studies that the high construction costs of the present-day hospital could in large measure be reduced by accommodating many patients in low-cost, one-storey, basementless wings.

Contrary to the common assumption that most hospital patients are acutely ill, an analysis would show that a large percentage of beds are often occupied by chronic, convalescent and non-acute cases, including normal maternity. Some patients are admitted for treatment requiring a minimum of care and can be accommodated away from an intensive care, centralized area. It follows, of course, that all patients,

whether they are in an intensive care section or in convalescent wings, rely for adequate care on all the departments of the hospital in some measure. To design a building that would maintain the necessary functions and be efficient in its organization as a result, was the task of the architects.

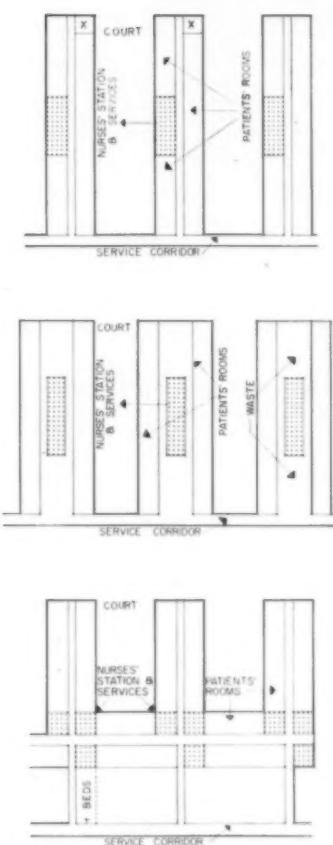
flexibility

The plan divides the hospital into a series of one-storey nursing wings alongside the central building or core. The ground level of the central building has central stores, sterile supplies, pharmacy, laundry, and kitchen horizontally feeding out to the wings and up to two floors above. The second floor of the core is the main, and active treatment area; the top floor is a 58-bed double-corridor nursing unit devoted to intensive care. The sketch shows the nurses' residence and training school, which is connected to the hospital by an underground corridor, in the right background. The power plant and laundry are in the wing in the left background.

There being no accurate method for determining how many beds to allocate to the wings and how many to the intensive treatment section, a *master plan* allowing for expansion of both was developed. Care was taken to ensure that expansion would be flexible. The choice of whether more convalescent-wing accommodation, or more intensive care accommodation will be added will depend on future demand. A fourth and fifth wing will give up to 140 additional beds; or, extending the building vertically, a fourth and fifth floor will give up to 116 additional beds.

The simple expedient of adding beds, of course, does not result in a well-ordered household. It will always result in a compromise to the organization, if the necessary additional services are not placed in the proper relationships. It will be noted in the plan for expansion that departments can be enlarged without compromising a well-ordered initial concept. To allow for the early addition of some 60 beds without disruption, the existing *chassis* was built to serve 300 beds. The portion now built has a rated bed capacity of 239 beds and 44 basins. Equipment includes 13 surgical recovery beds, 3 emergency recovery beds, 4 obstetrical recovery beds, 6 labour beds, plus 12,000 square feet for auxiliary services.

Figure 1.



planning problems

We can recall that the main problem in planning was to place the processing and supply departments to serve both the vertical and horizontal sections effectively. Horizontal travel for the spread-out wings was carefully analyzed. Since horizontal travel consumes perhaps less time than vertical travel in this hospital, patients in the horizontal wings would be closer—in time—to the central core than if they were stacked above it*. By putting these departments on the same level, under the central core, with

* Not everyone in the hospital field will agree with this statement as applied to hospitals generally. Although it may be the case in this particular hospital, the reverse is often true.—Editor.

Sunlight floods the long service corridor

a wide service corridor running alongside, and with the use of an automatic pneumatic tube system, the problem was solved.

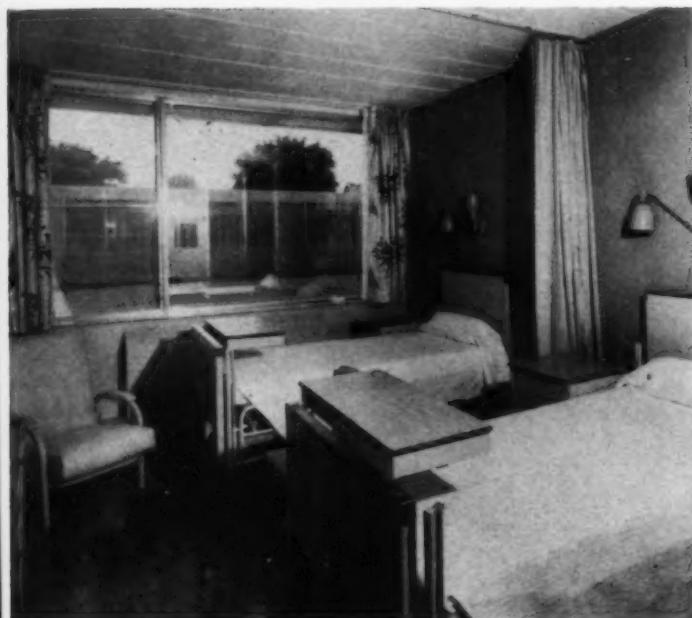
The diagrams in fig. 1 demonstrate schemes considered in the early planning stages for the one-storey wings. The top scheme presented corridors which were too long, nursing stations that were too far from the visitors' entrance, unpleasantly long courts and excessive walking distances between points marked "X".

The second diagram, indicating the shortening of units by means of the double corridor nursing services arrangement, was also an unsatisfactory scheme because it left wasteful, unused central space and narrowed the courts too much.

The final scheme, which solved the problems, used connecting links of four-bed rooms across the courts with nursing services placed at the intersections. The scheme also proved more flexible because the four-bed rooms in the transverse blocks can be re-allocated between one nursing service and the next as the needs vary.

A narrow wall of cut stone divides the two front entrances—one for ambulances, doctors and emergencies, the other for patients and visitors. Both these entrances are effectively grouped, since they are adjacent to the records and admitting departments, thereby creating a *nerve centre* for the control of all traffic. Visitors and ambulatory ad-





missions can be routed from the entrance and admissions through the lobby and down the main corridor to the elevator, while stretcher cases travel their separate route to the second elevator placed back-to-back with the lobby elevator.

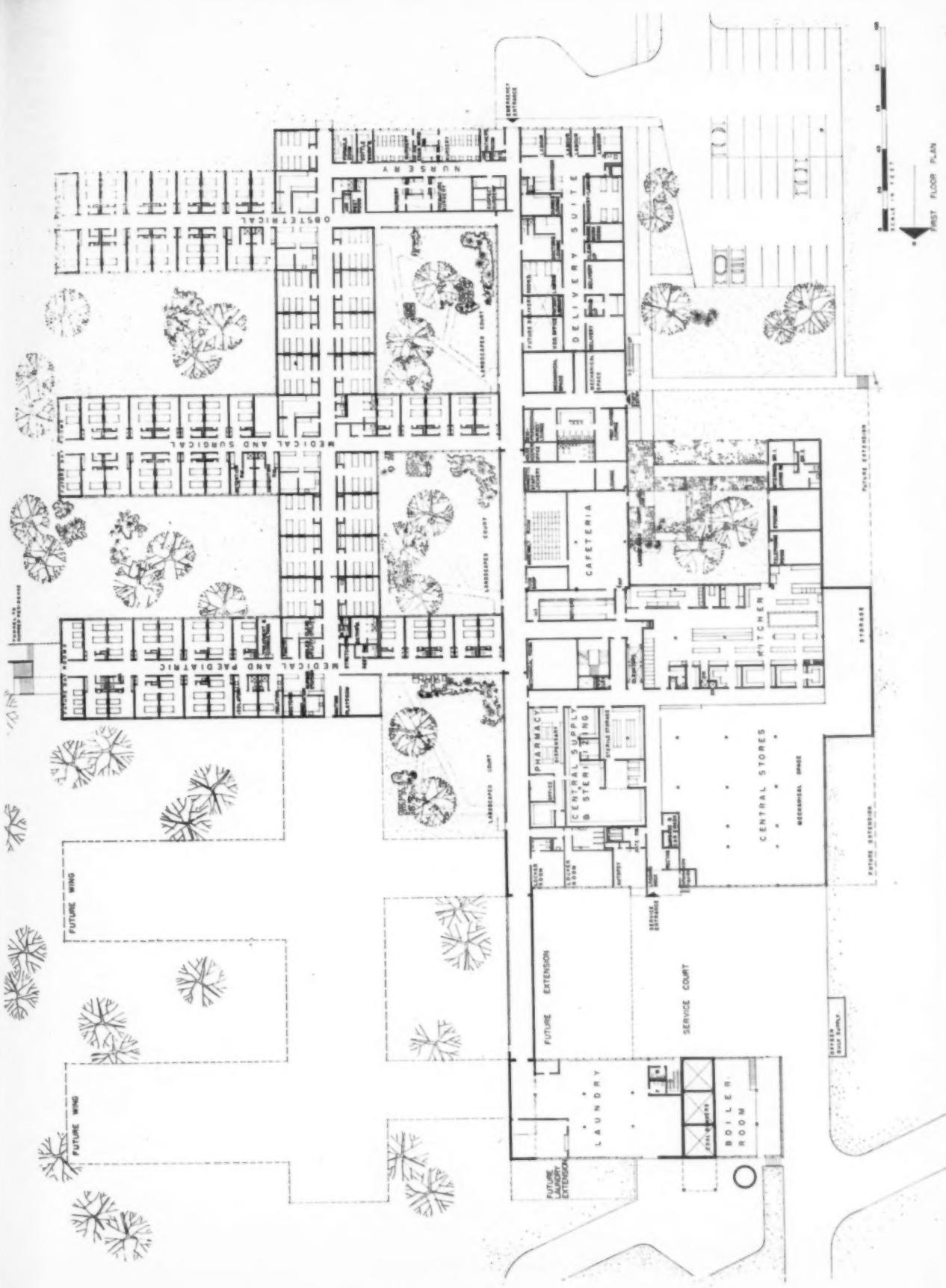
The emergency department is immediately next to the emergency entrance and is within easy reach of the facilities and technical staff of the x-ray department, fracture room, surgical suite and laboratory. The recovery room is placed to receive patients from surgery, emergency and dental operating.

The gradual west to east slope of the site was used to advantage for the mandatory grade level entrance—to what is really the second floor. On stepping inside the visitors' door, one sees an impressive lobby and main corridor with the business office and administration offices leading off it. Portraits of the Queen and the Duke of Edinburgh, a gift of the I.O.D.E., hang on the wall in the lobby. By passing down the main corridor past the chapel, radiology, laboratory, out-patient and physical therapy departments are reached—each with its own waiting room. Their grouping and placement makes them convenient for the out-patients and introduces an efficient method of handling hospital traffic.

Up a flight to the third floor is the acute medical and surgical section; down a flight are the convalescent wings. The acute section, with 58 beds set in attractive sunlit rooms, is arranged in a double-corridor plan. The service area is placed between corridors, and patient rooms are on the periphery. The service core is so planned that by dividing the floor lengthwise, each of two nursing teams will handle only 29 beds. With grouped nurses' stations, one supervisor can control the entire floor on the night shift.

The convalescent wings — the one-storied structures which stretch like fingers out from the main three-storied core — house maternity, the convalescent medical and surgical, and paediatric wards. The maternity wing is separated from labour and delivery rooms by the nurseries. A fathers' waiting room is nearby. Paediatrics was, of course designed especially for the children. Here a playroom contains the lure of a

Top: The neatly arranged kitchen promotes efficiency. Middle: Two-bed rooms have a cheery view of the court. Below: In the O.R. oxygen and suction hang from above.



television set for the little ones who are well enough to be up.

Between the wings are inner courts, pleasantly landscaped with walks, shrubs and trees.

The wings, built on slab on grade, contain structural clay tile bearing walls; the roof is precast concrete. In the main core fire-proofed steel columns support reinforced concrete floors. Partitions are of structural clay tile, plastered; and glazed structural clay tile form the walls for all corridors, operating, delivery rooms, and pantries. Window frames are aluminum with double glazing. The exterior is cream-coloured face brick.

cost reduction

At Niagara the horizontal plan helped us build for less and plan

more effectively. In the single storey plan we dispensed with a basement and used concrete slabs on grade. This is less costly than a building with a basement where the floor has to be structurally self-supporting. We used more economical load-bearing masonry walls, mostly for roof support, instead of a more expensive steel frame. A saving was made by using fewer elevators, since a spread-out hospital with a few storeys uses fewer elevators than the conventional multi-storied structure. With two elevators and provisions for a third, Niagara's traffic will be well served.

The grouping of nursing units into wings on one floor makes a further saving by reducing the area usually required for recurring

items such as elevators and lobbies, stairways and mechanical shafts. To effect savings in the operation of the hospital, care was taken to plan for efficient operation. The grouping of supply services horizontally on the first floor will facilitate handling and distribution. The horizontal contiguity of the diagnostic and treatment facilities on the second floor will mean ease of communication and circulation.

Corridors within departments and within nursing units are no longer than in traditional hospitals. The long corridors needed are those used less frequently. Niagara's automatic pneumatic tube system interconnects all departments to make further savings in the cost of operations and speed up service throughout the hospital.



Admitting and general waiting room; a chapel is partitioned off in the background.



Exterior, showing emergency entrance.

construction costs

Basic contract price	\$2,335,000.00
Group 1—Equipment	
laundry	\$102,000.00
kitchen	76,000.00
x-ray	65,000.00
pneumatic tubes	58,000.00
sterilizers	32,000.00
lab and pharmacy	28,000.00
OR and OBS lights	10,000.00
physical therapy	5,000.00
autopsy	2,000.00
morgue	2,000.00
	380,000.00
Contingency for changes and additions	90,000.00
Landscaping	5,000.00
Total construction costs	2,810,000.00

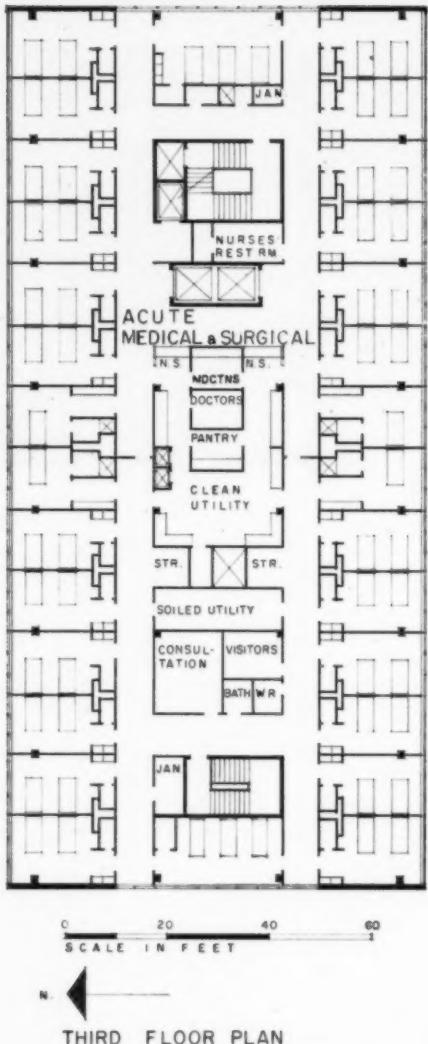
Total area 156,676 sq.ft. Cost per sq.ft. \$17.90
Total cubage 1,844,175 cu.ft. Cost per cu.ft. \$1.52

N.B.: The costs quoted do not include the architects' fees nor the price of the hospital site. The contract price does include cost of the doctors' paging system and the nurse-patient audio-visual intercom. It also includes cost of the boiler plant which has two high pressure boilers, with provision for a third, automatic coal and ash handling equipment, and an emergency power diesel generator. Groups 2 and 3 equipment — furnishings to scalpels — cost approximately \$200,000 over and above construction costs.



Entrance





The Consultants Comment

This hospital is an interesting combination of the spread-out, one-storey type of structure and central multi-storey unit. While a small hospital can be efficiently designed on one storey, when there are 200-300 beds and over the distances become so great that the time loss would make horizontal travel too expensive in comparison with vertical travel. Often it would mean too much traversing of intervening patient corridors. The solution would seem to be the multi-storey core.

It will be noted that the concept of moving patients from the intensive care unit to the intermediate or sub-acute areas applies only to medicine and surgery; obstetrics and paediatrics remain in special units throughout the period in hospital.

Whether or not there will be much transferring of patients will depend upon whether all or only some of the admitted cases go to the intensive care floor; some patients would receive better care in an intensive care unit, while others would not need such concentrated facilities. Many patients will probably not be moved at all. We doubt that there will be many convalescent patients, for all available beds will probably be required for those needing active treatment.

This type of construction assures, of course, adequate ground space. On the one-storey wings there can be definite saving in construction costs, provided they are not designed to carry more storeys. This is a limitation on future upward expansion. Also, the walls between rooms are weightbearing and cannot be readily moved. Expansion, as Mr. Owen points out, can occur elsewhere. However, we are not sure that, when a horizontal hospital reaches this size, there will be any reduction in operating costs other than those that can be expected from the fine equipment and communication facilities here provided.—*Agnew, Peckham and Associates, Toronto, Ont.*



Greater Niagara General



Welland County Hospital

how a hospital plan is developed

Herbert R. Agnew
Toronto, Ont.

AS HOSPITAL architects, we had long held the private belief that in the general hospital field, the ideal challenge in planning would be to design a hospital of 250-300 beds as a completely new building on an ample site. A building of this size requires the inclusion of all the departments necessary for a general hospital, yet any given department should not be of such an unwieldy size as to require that it be accommodated on several floors of the structure. The Welland County General Hospital, Welland, Ontario, presented exactly the problem we had sought. In co-operation with the hospital staff and the hospital consultants, very great care was given to re-examining the functions and inter-relationships of hospital departments, to attempt to achieve a completely functional and economical building.

Some points of this analysis may be of interest: Two basic principles apply to hospital planning. The various departments must be intelligently planned within themselves; and, of course, of equal

Mr. Agnew is a member of the architectural firm of Agnew & Ludlow, Toronto, Ont., and of Agnew, Ludlow & Scott, Welland, Ont.

importance, the departments must be inter-related in such a manner that the traffic in the building of supplies, personnel, visitors and patients is logical and under control.

Before planning any department, it therefore had to be decided which departments belonged together. It was found that for planning purposes in a hospital of this size, there were seven separate elements. The detailed investigation into the functions of these produced clear indications as to where, ideally, each should be located in the hospital. The seven hospital elements were:

1. Services

Truck dock, laundry, boiler room and incinerator, workshops and general employees' facilities, morgue, general store rooms (supplies), and kitchen.

Each of these sections has three things in common. They all require ready access to trucking facilities, easy communication with the rest of the hospital by private corridors insofar as possible, and none requires hospital traffic by visitors, nurses or doctors. Logically these services should be located on the ground floor. The floor should be off the exterior grade by

the height of the truck dock at this point.

2. Cafeteria

This area needs to be immediately adjacent to the kitchen, and in a position where it is conveniently private and available to convalescent patients (should the trend of up-patient cafeteria meals develop further). At the same time visitors to the hospital must be able to find the cafeteria without difficulty and without entering a private hospital area.

3. Diagnostic and treatment facilities

Radiology, pharmacy, laboratories, physical medicine, emergency, and out-patient department examination, et cetera.

These departments work together in varying degrees, and also must have convenient private access to the remaining hospital without transgressing upon visitors' or administrative areas.

Since emergency physical medicine and out-patient department facilities all require direct access by patients coming to the hospital from outside, it appeared that the most desirable location for these services is also on the ground floor of the building.

4. Admitting office

For maximum control with a minimum staff, day and night, this office should exercise visual control both over the emergency entrance and the main entrance and lobby. For convenience it should be *en suite* with the main business offices.

5. Administration

Administrative office, general office, medical records, and doctors' reporting and lounge.

Convenient access for the public to the offices is essential, and it is most desirable if the visitors do not have to enter any other part of the building. The ideal placement of the administrative areas, therefore, appeared to be immediately off the main entrance and lobby.

Having reached this stage in our analysis, we had arrived at the conclusion that the ideal plan would have all of the above facilities on the same level—the ground floor of the building.

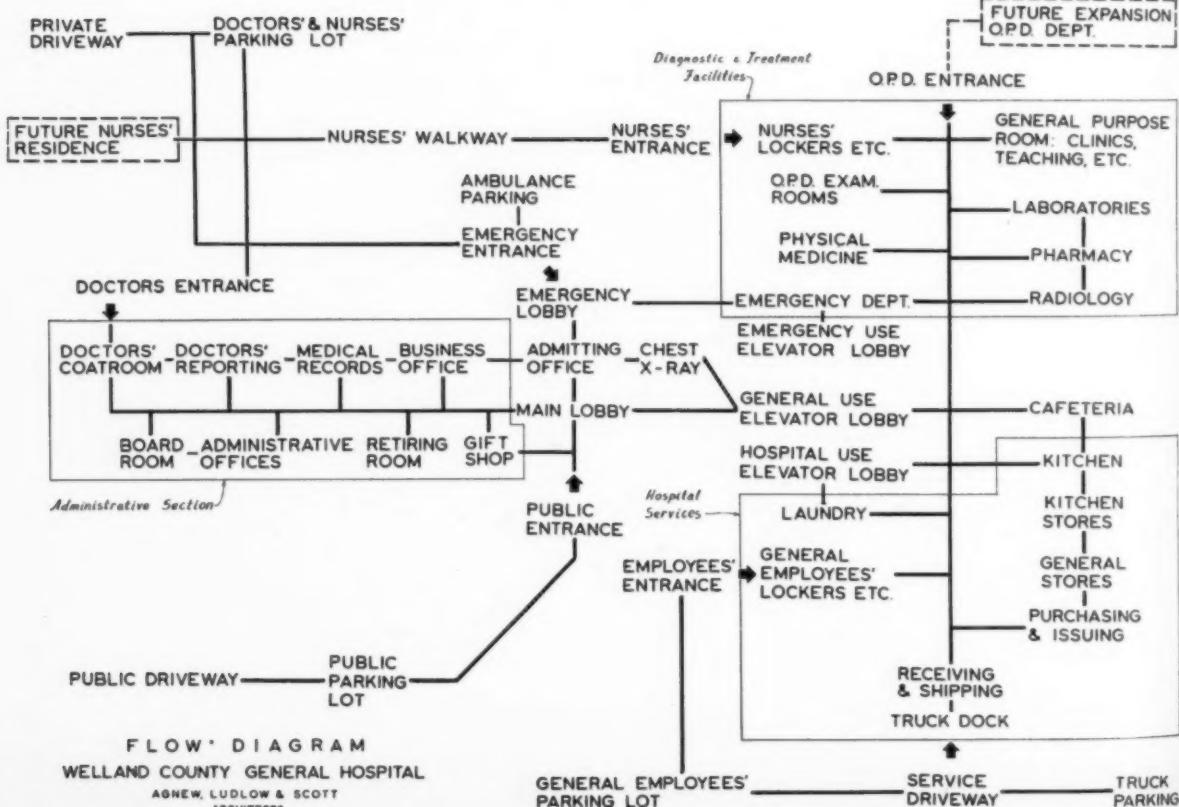
The only hospital elements remaining for consideration were

the nursing areas and the sterile areas (operating rooms, case rooms and central sterile supply). Investigations into the functions of these particular departments presented no valid reason why they too should be on the ground floor. (This will be discussed later.) Assuming that elevators would be required, we then were able to produce a flow diagram for the departments which we wished to place on the ground floor, to establish the relationships we wished to achieve. (See diagram below).

This diagram, then, gave the actual physical dispositions we believed we should have for these departments in the final plans. It remained for us to investigate the remaining elements of the hospital, to establish their requirements, and to discover whether or not our premise that these departments should not also be on grade level was valid.

6. Nursing areas

It was concluded that the patients' floors must be planned to be most convenient for the nursing



staff, and also to provide the best possible atmosphere for the patients. For ease of nursing and close control, it was concluded that, since team-nursing was not a consideration in this hospital, each nursing unit should consist of not more than 30 beds. Each such unit should incorporate its own nurses' station, utility rooms, patients' bathrooms, et cetera, at its exact centre. (See diagram 2)

The stacking of patients' floors one above the other in a vertical block had other considerable advantages. Minimum distances were obtained between nursing units and all other parts of the hospital, and minimum mechanical and electrical services were required to serve the floors. All washrooms, heating units, ventilating ducts, piped oxygen, pneumatic tubes, wiring, et cetera, could be placed in common

vertical shafts, so effecting the greatest economy.

7. Operating rooms, delivery rooms, and central sterile supply

It was thought that for maximum protection, the operating rooms and the case rooms should be in a somewhat isolated location, with central sterile supply nearby. It was, of course, considered mandatory that these three services be separate and distinct one from the other.

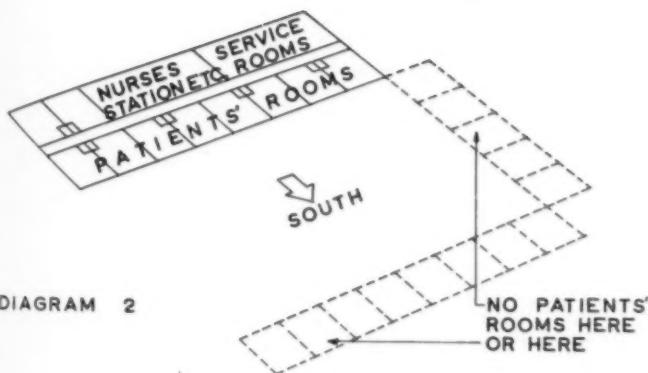
It was desired that the delivery rooms be *en suite* with the maternity section, and on the same floor level, to eliminate the need for transportation of infants and mothers through corridors or in elevators used by other patients.

Similarly, although the operating suite was provided with recovery rooms, it was thought desirable to have two nursing units on the same floor, for intensive nursing of acute surgical patients. These requirements all seemed to be fulfilled by the following plan arrangement. (See diagram 3)

The lay-out of the obstetrical floor is similar, except that access to the central sterile supply department is provided off the central elevator lobby.

Hospital Consultants
Agnew, Peckham, & Associates

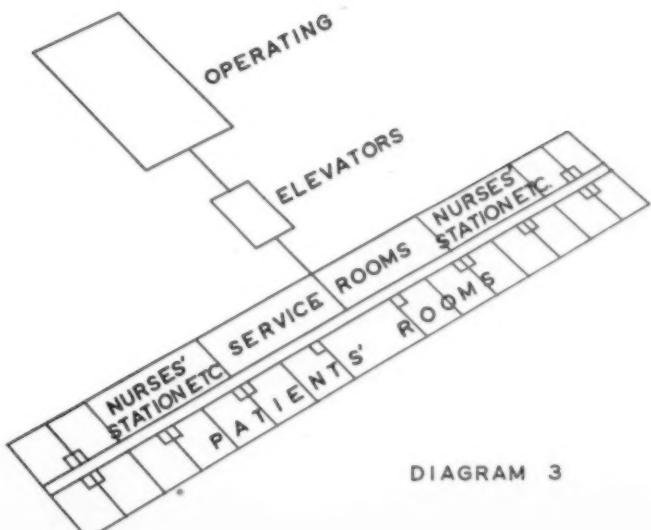
DIAGRAM 2

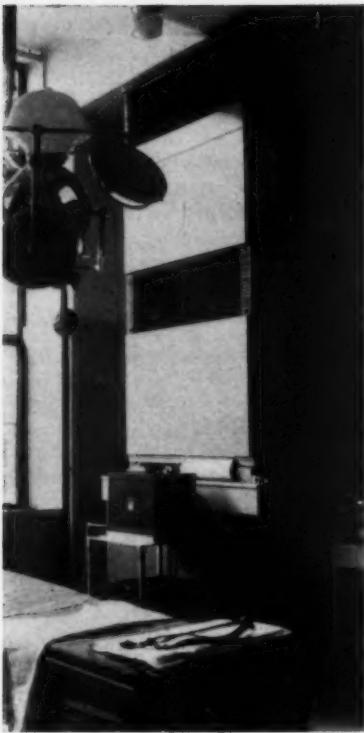


With this, the analysis of inter-department relationships had been completed, and detailed planning began. The final dispositions of the hospital elements matched, almost exactly, the schematic diagrams developed. The final conception was of a building consisting of a five-storey vertical block containing the nursing units, sitting on top of an extensive one-storey platform containing all of the departments shown in the first diagram. Off the second and third floors extend respectively, the delivery and operating suites.

Since the construction of this hospital began recently, it is expected that by the spring of 1960 another modern hospital in Canada will be in operation.

DIAGRAM 3





A packaged unit in an operating room

Air Conditioning

for the hospital

D. L. Angus, B.A.Sc., P. Eng.,
Toronto, Ont.

MANY changes in the mechanical plant features of post-war hospitals have occurred, but probably no single one is as apparent to both the patients and staff as the advent of air conditioning. Whether producing comfort or discomfort, complaint or satisfaction, the trend to mechanical cooling will almost certainly continue to develop. With its growth will come a new series of problems for hospital administrators.

Although air conditioning in its proper sense covers heating, ventilation, filtering, humidifying, or dehumidifying, as well as cooling, it is almost always considered by the layman to mean comfort-cooling alone. This fact probably gives rise to more confusion in the comparison of systems and prices than any other, as it is manifestly impossible to compare properly two systems, one of which simply cools, while the other provides year-round ventilation, good control, proper air filtering and adequate capacity to allow for high humidity reduction in hot, muggy weather. It is also apparent that no one type of system is indicated for all departments in different sizes and types of hospitals. It is, therefore, the

Mr. Angus is with the firm of H. H. Angus & Associates Limited, consulting engineers.

purpose of this article to describe some more recent installations and the available apparatus in general terms, and thus assist those entrusted with making decisions on the installation of air conditioning.

In our experience, the most serious need for air conditioning has arisen in specialized areas and departments. These are operating, delivery, and recovery rooms, cafeteria, central supply, out-patients, nurseries, and administrative offices. There also exists now a growing tendency to consider the conditioning of the complete structure in an attempt to eliminate the normal summer fall-off in elective cases, and thereby to reduce the peaks. Several hospitals in the United States, and at least two Canadian hospitals have installed over-all air conditioning.

Equipment available to hospitals to use for air conditioning is extensive, but a very rough summary may be of some assistance.

The smaller and simpler equipments are of the self-contained "package" type, having their own fan, filters, cooling compressor and cooling coil. These units need connections only to electrical supply and condensate drain in the case of air-cooled units, and electrical supply, cold water supply and return and condensate drain in the case of water-cooled units. They

include the "window units," well known from domestic use, and the "packaged unit," usually known from its widespread use in stores and restaurants. These units usually do not provide heating or humidification, they have low efficiency filters and are commonly associated with high maintenance. Their use is indicated in existing buildings where it may not be possible to use other, more efficient and desirable systems.

Central air conditioning systems are the more desirable alternative for hospital usage, but the types of systems and variations in apparatus are far too many to be covered here. It may, however, be noted that conditioning can be done by air alone, or by a combination of air for ventilation combined with underwindow heating and cooling units. These units are supplied with hot water in the winter and chilled water in the summer. The chilled water is provided from a central plant.

Several problems exist in installing air conditioning in an operating or delivery room. Since anaesthetic gases are used, it is customary to have a ventilation system capable of completely changing the air ten to twelve times per hour to reduce the danger of explosion. For the same reason, high humidities are normally maintained, vary-

ing from 50 to 60 per cent. It is regarded as essential to introduce only fresh air into the space and exhaust it to the outside rather than re-circulating. All of these facts tend to increase the refrigeration load to well beyond the normal. For example, in a recent design, it was found that the load for one 19 feet by 19 feet operating room was five tons. A normal office of the same floor area would have taken only $1\frac{1}{4}$ tons or $\frac{1}{4}$ as much.

It is therefore not a simple matter to cool these rooms and generally speaking, simple self-contained window units do not have sufficient capacity for the purpose. Occasionally a very small, minor operating room with a low heat load may be cooled by using the larger window units. It is necessary in this case to mount the unit above the five foot level to avoid using explosion-proof wiring. The capacities required in these rooms usually demand a larger capacity unit and thus come into the range of "package units". Again, the unit is mounted above the five foot level and performs a purely cooling function; i.e., if the rooms have already been equipped with a ventilation and heating system.

Such installations are far from ideal as they are noisy and drafty and, in addition, introduce space-consuming and dirt-retaining apparatus into the operating area. Their application has been in existing hospitals where it was not possible to mount the units outside of the area or to install central apparatus.

Most new hospitals have central air conditioning systems for operating departments built in as part of the new construction. Figure 2 shows the ceiling air diffuser of such an installation—this is the only visible evidence of the installation. Such diffusers, properly selected, reduce drafts so that they are no longer noticeable.

Since there is a growing trend to lower temperatures in operating rooms, it is essential that the system designer be advised of what temperatures are likely to be required in any new operating rooms, especially those to be used for special purposes.

The other areas in a hospital, apart from those already described, are similar in most respects to commercial air conditioning; and methods and prices are similar. One exception is usually made in the case of hospitals. Because of the ever



The ceiling diffuser is installed in a major operating room

present danger of cross infection, every care should be taken that filters to remove all impurities from the air are as efficient as possible. In addition, the design of the system should be such that little, if any, air movement takes place from one area to another. In other words, all possible separate areas should be supplied and exhausted individually.

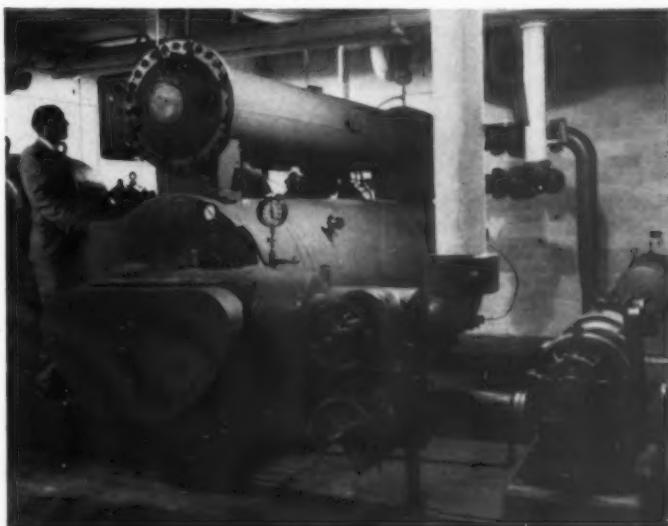
These two requirements indicate the use of central systems rather than the "package" type of installation, as the latter are almost invariably equipped with low efficiency filters and cannot normally accommodate extensive duct systems.

The costs of operating room installations in existing buildings vary widely with the load, nature of structure, et cetera, but in our experience they have varied from about \$2,000 per operating room to \$6,000 per room depending upon how much existing equipment could be recessed.

The cost of adding operating room cooling to a new installation above and beyond cost of the ventilating system normally provided has probably been about \$2,500 per room, or six to seven dollars per square foot. The price, as stated earlier, is much higher on a unit

(concluded on page 116)

Seen here, a big central refrigeration machine in a Toronto hospital



Planning for Economy

D. F. W. Porter, M.D.,
Bathurst and Moncton, N.B.

A CASUAL interpretation of the words efficiency and economy might well indicate an atmosphere of cold-blooded ruthlessness achieved by an environment of figures, statistics, graphs, and financial statements. Such an atmosphere would be extremely unhealthy in a hospital, although one must admit that some institutions in our country are now run under such conditions. It requires no particular degree of intelligence to operate a hospital "on the cheap" and relegate to the background high standards of patient care and safety. Statistics, figures, and financial statements are extremely important tools of management, but only if and when they are interpreted and used by persons of broad experience and understanding.

One submits that there is no real efficiency and economy in arbitrarily keeping down the per diem costs of a hospital if it results in longer length of stay for the patients, cross infections, unnecessary hospitalization, or accidents to patients, staff or visitors.

I would like to offer as definitions, the following: *Efficiency*: "The power to produce the most effective results for the minimum expenditure of energy or money". *Economy*: "That management which expends money to advantage and incurs no waste".

It is a fact, proven in many of the best hospitals of our country, that a hospital can be designed and operated for the patient, and in a manner truly efficient and economical. It is only so accomplished, however, when the top policy makers honestly desire that this be so. The planning for a *really good* hospital requires as a first step a knowledge and understanding of what is required of the finished product. Furthermore, this understanding can be best assured if those in charge of the planning are not economists or statisticians but

Dr. Porter is president of the Canadian Hospital Association and a hospital consultant.

persons with the broadest possible experience in hospital operation and management.

Selecting the Site

Unreasoning sentiment can be a very costly luxury, and this phrase is particularly true when it is applied to selecting a hospital site. Many an existing hospital is an inefficient and uneconomical unit because an earlier hospital board allowed sentiment to determine the site for a new hospital or extension of an existing one. In some instances a would-be-benefactor has donated the land, and the board has not wished to hurt the feelings of the donor by abandoning it as a site. In another instance a small hospital already exists on a restricted site and the board decides to expand on that site even though the finished product might well be an administrative and architectural abortion.

The dispassionate advice of architects and engineers should be sought in the very earliest stages of the planning, so that a site might be selected which will allow for a functional design capable of efficient administration and easy expansion. Certain specifications regarding the site are set forth in the *Standards for Hospital Construction* as prepared by the Department of National Health and Welfare. One would expect and hope that the provincial authority for a hospital insurance program would elaborate on these specifications.

Planning Team

It is probably a fact that no really worthwhile designs for hospitals have materialized by the efforts of only two or three planners. Just as I honestly believe there is "no such animal" as an "expert" in the field of hospital administration, just so sincerely do I believe that no one can lay claim to being an "expert" in hospital design. Today's modern hospital, irrespective of its size, is a complex unit with specialized professional and ancillary ser-

vices which are staffed and used by rugged individualists in the nursing and medical fields. The planning for such a project must therefore be well organized, with a small group responsible for planning details at the local level. If a hospital already exists and has an administrative head capable of co-ordinating the collecting of ideas and methods, then, in my opinion, such an administrator should be the head of the planning group. Other members of the hospital planning team should be selected on the basis of their capacity for hard, concentrated work and for possessing a really open mind. These additional members might well be the director of nursing (maybe she is also the administrator), one member of the medical staff, and one member of the hospital board. If no hospital already exists, a small interim committee should be set up to co-ordinate the local planning.

Additional members of the planning team are the architects, engineering and hospital consultants, a representative of the provincial department of health (or hospital insurance commission) and Gordon Hughes of the Hospital Design Division in Ottawa. I know of no single person in Canada who has made more concrete and worthwhile contributions to hospital efficiency in the past decade than Mr. Hughes. He is highly skilled, widely experienced, readily approachable, and—*his services are free!*

The planning team suggested will rarely if ever meet in joint session. They all have a great deal that is worthwhile to contribute to a finished product through modern planning methods.

Preliminary Survey

To be worthwhile, this survey should be conducted in an orderly and unhurried manner by really competent persons. It can roughly be divided into two categories: (1) a prediction of the total beds required in a hospital region, related to an over-all provincial picture, and projected ahead for a five to ten year period; and (2) a study of the needs for patient accommodation by various departments; for the requirements for all professional and supporting services; and for the provision of offices for doctors and local health authorities. This study should result in figures indicating requirements in square feet which can form the

(concluded on page 118)

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ELECTRICAL DESIGN

G. E. Mulvey,
Toronto, Ont.

for
a
modern
hospital

THE designing of an electrical system for a modern hospital is an intriguing, but highly specialized field. Within a hospital there are systems which are peculiar to these institutions, together with almost all of the systems used in other buildings. Therefore it is necessary for the building committee and the hospital staff to ensure that the hospital is being equipped with systems which are adequate for the present, as well as the foreseeable future—systems which may be expanded without overloading.

Power Supply

The main service should be brought into the building to a location which is readily accessible for maintenance and replacement of parts which will not interfere with expansion, and which will be as close as possible to the centre of the load. Good electrical design, as well as good economics, generally indicates an outdoor substation. Aesthetic considerations may require that the high voltage service be run underground and a cubicle type of substation be used. This eliminates the use of metal structures which may be 35 feet in height, although the tower type of substation is cheaper. The cubicle type of substation can be painted to harmonize with the building or may be screened by planting or a wall.

In some areas it is possible to obtain a dual service from the utility by having each feeder coming from a separate substation and

G. E. Mulvey, B.Eng., P.Eng., is a consulting engineer.

an automatic transfer device to switch the entire load to the second feeder when the first feeder fails. With proper substation design, this can reduce the emergency stand-by capacity to a considerable extent.

When transformers are located within the building, every precaution should be exercised in order to avoid the possibility of hum transmission either through the building structure or through the air.

All secondary distribution equipment should use circuit breaker, rather than fused, protective devices. This ensures a rapid restoration of service in the event of a temporary fault, as well as reducing spare part storage. The emergency power supply may be provided by an alternator usually driven by a diesel, gasoline, natural gas or steam engine.

With sets of these types, power may be restored in 10 to 20 seconds from the time of the interruption. If required, a supervised battery or inertial system may also be used to provide uninterrupted power to the main operating lights. In general, the emergency system is not intended to carry more than the minimum essential electrical services. This would include, at least, the operating and delivery rooms with their exhaust systems, nurse call equipment, central suction system, one elevator with a transfer arrangement to permit evacuation of all elevators, fire alarm system, heating system, pumps, outlets in nurseries (particularly premature and suspect), lighting at nurses' stations, corridors, exits, stairs and at the telephone switchboard. Since the loads are not ex-

cessive, the doctors' paging system and similar intercommunications systems may be added. The exact capacity of the emergency system and the type of engine used require considerable study and are beyond the scope of this article; however, spare capacity must be included to provide for expansions.

Wiring devices such as switches and receptacles are probably used more in hospitals than in any other type of building. It is good sense, therefore, to ensure that all such materials are of good quality in order to withstand the constant usage. There are many new types of switches, such as the "push" switch, a semi-silent A.C. switch, which may be turned on easily by a push of the finger, elbow or arm and which should stand up well. There is also a "glow-tip" mercury switch which might be used for the patients' washroom lights since the toggle glows and may be found easily in the dark.

Unbreakable metal plates are preferred for switches, receptacles, telephone and other outlets, rather than composition types which become broken frequently.

Lighting

Lighting is a very important part of the electrical system. It should be considered with the same factors in mind as in judging any lighting system. These are:

Function—Is the luminaire proper for the location? Is there adequate quantity of light in foot-candles? Is the lamp shielded to provide brightness control?

Installation—Is the luminaire going to conflict with future alterations to the room or area? Is there sufficient clearance? Is it costly to install?

Maintenance—Is the luminaire efficient? How much light per watt is it producing? Are its components of good quality? Is it the product of a reputable manufacturer? Is it easy to change lamps and is there ready access to other components which must be replaced? How often must the luminaire be re-lamped? Is it a dust-collector? Is it easy to clean? Is it made of materials which will require replacement or which will discolour?

All of these items must be considered in the selection of the lighting system. Fluorescent luminaires produce more light per watt and have a much longer lamp life than those using incandescent lamps; therefore it is reasonable to use flu-

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Areas such as laboratories, offices, operating rooms, delivery rooms, records, nurses' station (desk and charts), sewing rooms and pharmacies should be provided with general levels of 100 foot-candles. The level on the operating table should be 2,500 foot-candles.

Supply and utility rooms, washrooms, clean-up rooms, solaria, x-ray departments, formula rooms, should have 30 foot-candles, and corridors, stairs and public areas should have 10 foot-candles with alternate switching, or night lighting.

Shielding of the light source is particularly important in patients' rooms, corridors and nurses' stations. Wherever the higher levels of illumination are installed, brightness and contrast must be well-controlled. Work surfaces, ceilings, floors and walls should be finished in light colours.

Perhaps the most controversial lighting unit in the entire hospital is the patient's bed light. The basic requirements for the patients' rooms are 10 foot-candles of general illumination and 30 foot-candles on the reading plane. The luminaire which provides the 10 foot-candles of general lighting must be out of the normal viewing angles, or must produce no visual discomfort to the patient who may assume any position from horizontal (prone) to vertical (seated). Perhaps the simplest solution is to provide a light source on the wall behind the patient; it should be shielded from viewing across the room. The light on the reading plane may be provided by an adjustable device to produce light from the proper direction regardless of which position the patient is in. The shade of this device must be cool to the touch to avoid startling or burning the patient. The arm must be easily adjustable and yet must be almost indestructible and easily maintained. Both upward

and downward fixtures must be easily relamped, gather a minimum of dust, require as little maintenance as possible, and should be efficient in order to keep the amount of heat generated in the room to a minimum. The efficiency is important to the patients' comfort as well as to the power bill and distribution system.

An alternative solution to the bed light problem is to use a fluorescent luminaire. This fulfills the requirement for an efficient light source since the fluorescent lamp is approximately 250 per cent as efficient as low wattage incandescent lamps. If the luminaire were to assume the form of a metal shield painted to match the wall with a glass-shielded upper component separately switched from a glareless reading light of adequate intensity, the unit would be practical. However, the source must be long enough to cover the entire bed width so that the light will reach the reading surface without making it necessary for the patient to assume an uncomfortable position in order to avoid the shadows. With the wall-mounted fluorescent luminaire it is also necessary to use a good ballast with a low sound rating and a suppressor to avoid radio and television interference. The location of the night light must be given consideration too. A fixture which includes all of the lighting required for the patient is under investigation at the present time.

Signals and Communications

The installation of a television antenna system in the hospital may not only be used to provide revenue through rentals, but, by offering entertainment for the patients, will reduce the number of calls to the nursing staff. The most recent developments indicate that antennae outlets between beds, designed for use with small sets for each patient with underpillow speakers or earphones, are the best arrangement.

Central radio systems which offer the patients a choice of stations, are operated by a switch and are fed through underpillow speakers. Again, this may be a source of revenue. This system is well worth considering, particularly for locations beyond the television broadcast range.

Both the telephone companies and private, individual companies offer systems which provide intercommunications within the hospital. The telephone company combines

the two systems. The electrical system should incorporate adequate provision for cables, including an underfloor duct system in office sections where necessary, and conduits to locations where outlets may be required in the future.

The doctors' paging system may be visual or audible. The visual or "silent" paging system is not installed as frequently as the audible systems. The audible systems vary from the "walkie-talkie" portable radio system, to high- and low-level systems. The low-level system uses many small speakers in corridors on patients' floors, with limited range, so that the sound is not heard in a patient's room unless the door is open, and with speakers in the nurses' stations, lounges, et cetera. Paging announcements are usually made by the telephone switchboard operator.

There may be audible two-way intercommunications systems between serveries and kitchens, elevators and emergency transfer position or dispatcher, and between central supply and utility rooms.

Audible buzzer systems are usually provided from doors to night duty offices, and receiving entrance to receiving office.

Communications between the patient and nurse are achieved by one of two systems; visual or visual-audible. The visual system consists of a locking type of push button, dome light over the door to the room, and an "annunciator" at the nurses' station with lamps and buzzers in the duty rooms.

The visual-audible system incorporates the features of the visual system with two-way voice communications between the nurses' station and the patient. The important points of this system are its serviceability, operation and past performance. Are all of its components well made? What is the reputation and experience of the manufacturer? What service facilities are available? Where else is it installed? What are the opinions of the hospitals which have used the equipment? How well does it actually detect and reproduce the patients' voices? Is it simple to use?

The doctors' register system is a simple system consisting of two "annunciators," each with switches and with a flashing device. One "annunciator" is located at the doctors' entrance and the other at the telephone switchboard or enquiry. The doctor operates a switch opposite his name to turn a light be-

(continued on page 150)

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FIRST appearances have always rated highly in the mind of anyone decorating rooms for human habitation. Contemporary psychologists are still praising the advocates of colour therapy, especially for buildings such as hospitals where the medical staff needs every means available in aiding the patient toward a speedy and complete recovery.

The experienced hospital administrator and architect, however, recognize an equally important factor for consideration when selecting materials and finishes for a hospital, i.e., the "physical character" of the finishing material itself. These physical qualities that merit serious consideration when selecting finishes, be it for a floor, wall, ceiling or counter top, are listed below, but not in any order of importance, since this may vary for different departments and areas of the hospital.

(a) *Fire-resisting qualities.* Most new hospitals today, in order to qualify for government grants, are of fire-resisting construction; therefore, many of the finishes must be chosen with this in mind in order to comply with the over-all fire-resisting requirement.

(b) *Cleanliness.* Ease of cleaning various finishes is of great

The author is a member of the architectural firm, Govan, Ferguson, Lindsay, Kaminker, Langley, and Keenleyside.

importance. Not only must the material itself be considered, but the junction of one material with another must be taken into account as well.

(c) *Life expectancy or durability.* Hospitals as a rule continue in use as such for a longer period of time than office buildings or commercial buildings. Money for construction is always hard to obtain. Certain areas are subjected to much harder wear than in ordinary buildings. Therefore the materials should be chosen for durability.

(d) *Ease of maintenance of materials and initial cost.* These two qualities have to be considered together. The two qualities are frequently at odds with one another. A material that is easy to maintain very frequently costs more over a period of time than material less easy to maintain.

(e) *Quality and attractiveness.* Materials must be chosen with quality and attractiveness in mind. The hospital is more than just a clean, fire-resisting, easy-to-maintain building.

With these basic qualities in mind, let us examine some materials that could be used.

Floors

Floors for hazardous areas will not be discussed, as the problem is too large and too complicated to cover in a general article on finishes.

Marble

We might as well start with the most expensive and least used. In areas subject to abuse, marble has a very definite place. During the winter in most parts of this country, sand and salt are spread on the roads and walks and are tracked in—particularly by visitors. Marble in a rotunda or lobby will stand great abuse and is very easily cleaned by damp mopping. Many department stores and hotels use the material at the points of greatest wear because of long range economy. However, beyond this use it is far too costly to consider.

Carpeting

Commercial buildings and theatres use carpeting since it stands up for a number of years to great abuse at entrances and is an excellent sound deadener. However, in hospitals it should be ruled out because: (a) It provides an excellent hideout for staphylococcus and other durable bugs. (b) It has to be cleaned by vacuum

cleaners and vacuum cleaners by their very nature stir up the air and spread staphylococcus bugs.

Terrazzo

Terrazzo is composed of marble chips and cement. Terrazzo in the field is reasonable in cost, is durable, has a great range of colours, and is very easily cleaned. It is mainly criticized as being "too hard". Washing procedures for terrazzo are straightforward. It does not require waxing. Terrazzo is used extensively and effectively for bases—either regular cover type of base or the bedstop base. Since it is formed and moulded to shape on the job, it permits a smooth junction to be made between floor and wall without the need for a continuous joint.

Terrazzo base costs more per square foot than does terrazzo on the floor. This is due to the fact that it requires more labour and more grinding time in relation to work on the flat. Terrazzo base will cost more than the applied bases such as rubber or mastic. However, the applied bases inevitably have a junction crack at the top where the base joins the wall and at the bottom where the base joins the floor.

Sheet or tile flooring materials

Some of these materials are available in sheet or tile form, others are available only in tile form. The colour range available is extensive. The materials are listed as follows in their approximate cost range. The cheapest is first.

Mastic tile is hard, somewhat noisy and slippery. It can be applied on a basement floor. It requires washing and waxing with a water based wax. If petroleum based wax is used, colours will run because petroleum is a solvent for mastic tile.

Linoleum is moderately resilient but is not guaranteed to stay down on a basement floor because of possible dampness. It requires washing and waxing.

Vinyl asbestos is not very resilient, can be applied on a basement floor and requires washing and waxing.

Vinyl is moderately resilient and requires washing and waxing.

Rubber is resilient too, but is not guaranteed to stay down on a basement floor. It requires washing and waxing.

Mosaic Tile

This is a small burnt clay tile
(continued on page 78)

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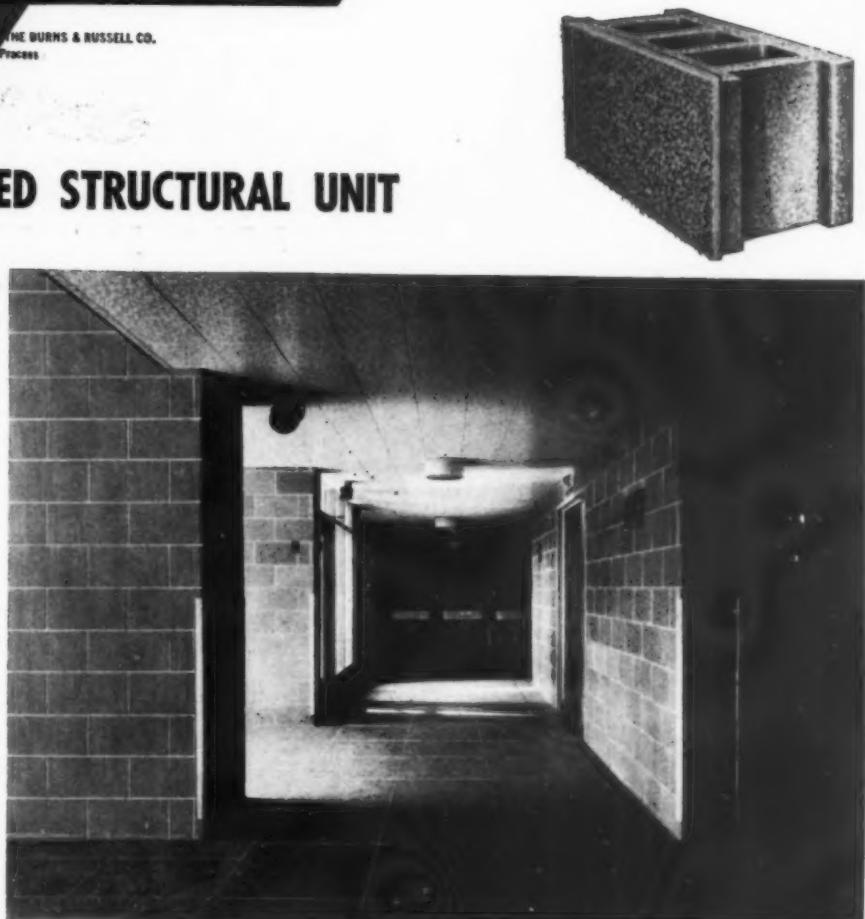
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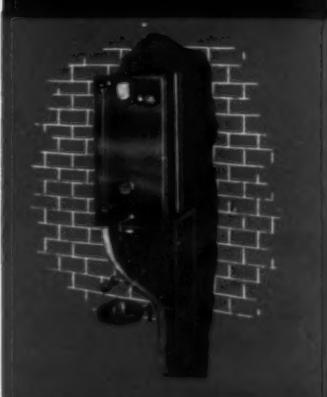
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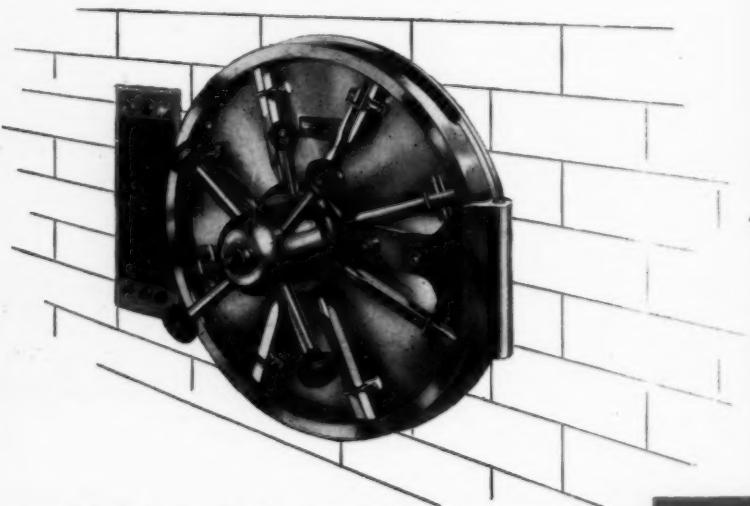
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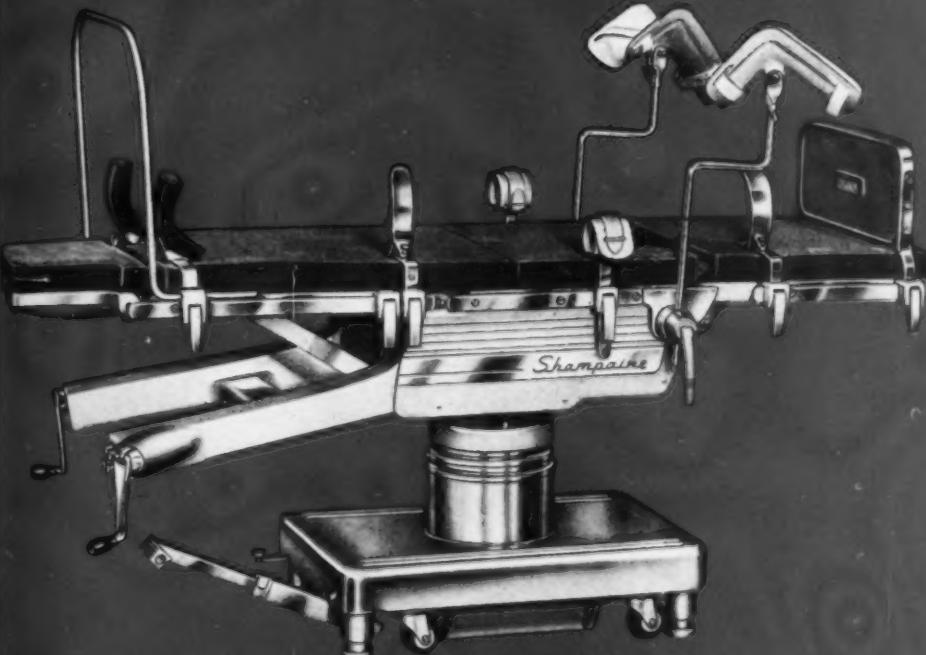
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Interior Finishes

(continued from page 74)

used extensively a number of years ago for bathroom floors. It has been largely supplanted by terrazzo. Mosaic tile is hard and durable with a good colour range. The main objection to its use is the multiple number of joints. It requires washing only.

Quarry Tile

Generally red or reddish brown in colour, this tile is very hard and durable. It will stand great abuse. The tile itself is impervious to fatty acids and is frequently used in kitchens for this reason. The weakness of the floor lies in the jointing material. Frequently the joints give way under stock pots or steamers. This is caused by fatty acids, lactic acids, steam, et cetera, attacking the cement of the joints. However, special acid resisting jointing material is available.

Magnesium Oxychloride Floors

This type of flooring is sold under a great many trade names. In appearance it resembles terrazzo and is laid in a similar fashion. The ingredients are marble chips and magnesium oxychloride cement. In the wet, steamy areas the material will not stand up. Certain germicidal solutions will attack the cement of the floor, causing disintegration. The material must be carefully applied and application requires a technique peculiar to this material. If this technique is not carefully followed, the resulting floor will not wear well. It has very definite uses and attributes but should be carefully considered before extensive use is made of it in hospital construction.

Wood

Because of the multiplicity and extent of joints and a tendency to rot if frequently washed, wood is not very suitable in hospitals.

Cork Tile

This flooring is quiet and sanitary if given adequate protection against rotting.

Hot Mastic Floors

These have a tendency to become pitted and dented with normal use.

Before finally selecting floors for a hospital, it is well to examine the impact that the various types of flooring have on the hospital's housekeeping department and budget.

The daily cleaning of floors is a big item of recurring cost. Don't

pick six types of flooring materials that require different cleaning procedures and cleaning equipment.

The public *en masse* are an untidy bunch, capable of dropping litter almost anywhere—witness the C.N.E. grounds in Toronto 20 minutes after the place has opened, or the roadside tables on the highways. Despite the presence of garbage cans, half the public is too lazy to use them.

In areas of a hospital where the public is not under close observation, it is well to keep floor colours and wall colours light in range and provide ample artificial illumination. Untidy people hesitate to drop cigarette butts on the floor if it is light in colour and well lighted. If you choose good dark brown you are asking for trouble.

Wall Finishes

Materials for wall finishes break down into two broad categories: (a) materials that provide structural strength for the wall and provide at the same time a finished surface; and (b) materials that are applied to a rough structural wall to provide the desired finish.

(a) For structure and finish at the same time

In order to provide the structural requirements, these materials vary in thickness from approximately 4" up. The finishing surface is achieved by either careful manufacture of the material to provide an acceptable surface or an additional glazing or surface treatment is applied after manufacture of the structural block. It is either a concrete product or one of burnt clay.

1. Smooth face partition tile—burnt clay. This is generally red or reddish brown in colour and is hard and durable with a fine dense surface. A certain amount of shrinking or warping will occur to the block while it is being burned in the manufacturing process. There is a slight irregularity to the resulting wall. It is very useful for storage areas, locker areas, et cetera, where a durable fire-resistant, not-too-expensive material is required.

2. Structural glazed tile. This is a burnt fire clay product with a clear glaze or a coloured glaze applied to the structural unit. The colour range is wide and very pleasant. The product is hard and durable with a very fine dense surface and is available in different gradations of glaze from dull to

high gloss. It is a very useful material for areas where heavy traffic or rough usage is expected. Due to the nature of the glaze, refinishing or redecorating is not necessary. It is, therefore, useful for those areas where, because of the activity going on, redecorating is difficult. It has been used extensively in corridors, kitchens, laboratories, et cetera.

3. Concrete block. This is, as its name implies, a concrete product, not a burned clay. Colour range is limited to the greys. It is hard and durable with a porous surface finish. Good quality blocks are generally true, and when laid up properly they provide a pleasant-looking wall. It is useful for storage areas, lockers, et cetera, where a durable, fire-resisting, not-too-expensive material is required, and where a dense, fine finish is not mandatory. It should not be used in areas where a high degree of sterility is desired. The pores of the surface can and do provide a lodging for dust and the like.

4. Concrete block with glazed surface. This is a relatively recent product. It is achieved by glazing the surface of the concrete block. The colour range is wide. It is hard and durable with a dense surface. It is useful for areas of reasonably heavy traffic. It has been used for corridors, et cetera.

(b) Applied to a rough structural wall

Plaster. This is probably one of the oldest materials still in use for finishing. It has one great advantage—its cheapness. It provides a fine, dense, and reasonably durable surface. It will not stand up to rough usage. Trucks will eventually score the surface badly. It will not stand up in wet or steamy areas.

For areas of reasonable usage such as bedrooms, et cetera, it is widely used. It is a very adaptable material since it is applied and shaped on the job. This permits a degree of flexibility that block or unit materials do not possess.

A plastered rough tile wall is still probably the cheapest type of construction, but it has its limitations. It requires some sort of surface treatment. Paint is the cheapest. There are a number of fabrics and plastic materials manufactured for application to a plastered wall. If these are applied to the plastered wall, then the preceding comments about cheapness will not necessarily apply.

Paints. There was a day when

most paints were made with one principal base, namely lead. Today the picture has changed vastly. There are paints with lead bases, rubber bases, resin bases, and a myriad number of other basic goos to which pigment is added. Each type of base lends a different quality to the paint. The types have been developed to provide the best answer to specific problems.

Since it is a competitive world, each type comes in a couple of

qualities at least, and if pressed for an even cheaper paint, most companies will scrape the bottoms of old vats or barrels and come up with a cheap paint that probably defies analysis.

When repainting, consult a reputable painter or supply house for advice as to the best quality of paint available for your purpose.

Flexible wall coverings. These are so well known that it is probably superfluous to comment on

them. A wide variety of colours and textures are available and the price range is wide—the cheapest probably being the waterproof wall-papers, increasing to the vinyl sheet material. Exact matching of material after the dye in the vat has been changed is very difficult. If you have occasion to try to match colours at a later date, you may well be disappointed.

Ceramic Tile. Ceramic tile is a burnt clay product which is subsequently coloured and glazed. It is bedded in the plaster coat applied to the structural wall. It provides a fine dense finish in a wide variety of colours. It is very useful for areas that are subject to a good deal of abuse. It is easily cleaned.

The tile is available in a variety of sizes and qualities and comes from England, Germany, the U.S.A. and Canada. The material is similar to that used for china or pottery dishes and the process of manufacture is similar. It is widely used for operating rooms, utilities, splash boards for wet areas, corridors, et cetera. When trucks can come in contact with outstanding corners finished with this material, it is well to protect the corner with metal. The material will not stand up to repeated sharp knocks.

Ceramic tile of glass. This material is approximately 1" by 1" and comes in a variety of colours including very brilliant ones. It is manufactured in Italy. The material, when properly used, can be very decorative. It is used in a plain field or in patterns. It is relatively expensive. Due to this, and the small available size, it is used mainly as a hard wearing decorative material in public areas or for protected exterior use.

Quarry Tile. This is a burnt clay product similar to the floor tile described previously. It comes in red or reddish brown colours. It is very hard, dense and capable of withstanding severe knocks. It is frequently used as a wall finish for refrigerators and kitchen areas subject to hard usage. It is relatively expensive and the available colour range inhibits its use to a certain extent.

Terrazzo. As described under "Floors", terrazzo can be used as a dado or wall material for areas subject to wet or hard use. It is not as successful as a wall material as for a floor material when cast in place. Finishing terrazzo cast in place on a vertical plane is more difficult and sometimes not as suc-

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cessful as finishing flooring. The reason is that the grinding of the chips on the vertical is difficult. As a result, dado material of this type is sometimes precast in slabs finished while in a horizontal position and then placed against the wall.

Glass. Glass for wall finishes is available in a wide range of colours and in a variety of types.

The Toronto subway walls are finished in a glass material which in turn is backed by a concrete slab. The reason for the concrete is to give the material strength against sharp knocks. Of course, the glass finish is admirable for its purpose in that it is impossible to write on the material or deface it. Lipstick will mark the glass, but it is easily removed from the surface. The subway problem was primarily to achieve a dense, durable, undefaceable material which did not require redecorating. Since the subway problem is the public *en masse*, the undefaceable quality probably was of greatest importance. Other types of glass products are available and are relatively expensive. It has been used extensively as an exterior finishing material. It is subject to damage by thermal shock and some exterior uses have not proved to be too successful—especially the type of application that relies on glue to hold the glass to the building structure.

A glass fabric is available for use as a finish to a plaster wall. It is very tough and durable, giving a reasonably dense finish to the plaster wall. It requires painting and is relatively expensive.

When choosing wall finishing materials it is well to keep the following in mind:

(a) Make sure that the outstanding corners which are subject to bumping by trucks are of a tough, durable material. If the material being used on the wall is not of this nature, finish the corners with an adequate corner guard of metal, well grouted to the main structure.

(b) For wet areas, steamy areas, or areas subject to heavy use, avoid the materials that are prone to damage from these sources. Remember that plaster finished in a soft flexible wall material is not much harder than the plaster itself. The plaster, not the surface covering, is the material that finally has to withstand the knocks.

(c) Keep in mind that refinishing or redecorating in certain departments of a hospital is difficult when a continuous process must

be followed. Some departments must be kept going all day. In such areas, it is easier to wash the walls than repaint them.

Ceiling Materials

There are two basic requirements for ceiling materials: one is cleanliness, the other acoustic qualities.

Plaster

Smooth putty coat finished plaster is probably the cheapest finishing material available. It is clean, hard and dense, and provides considerable resistance to fire. Gypsum finishing plaster provides more fire resistance than lime. However, it will not assist in absorbing sound waves. So, since neither ordinary gypsum nor lime finishing plaster contribute much to the sound absorbing quality of a ceiling, noise reduction in a hospital should be provided by special treatment even at the increased cost involved.

Since many areas of a hospital by reason of their function require hard, durable floor and wall finishes, the resulting structure is very live to sound transfer and amplification. The ceiling is therefore the principal area where sound can be trapped and silenced. Furthermore, as sound absorbing surfaces must of necessity be of a porous nature, their location out of reach and contact with room occupants provides the most logical and practical solution of this problem of noise reduction. For this reason the treatment of a ceiling is a more efficient, practical, and safer method than introducing curtains or soft, noise absorbing, and fire hazardous materials at a lower level in the room.

A number of available ceiling materials have been successfully used in hospitals.

Perforated Metal Pan

This material is just what its name implies. It is pre-fabricated and suspended from a grid system of metal channels. The holes within the metal itself, plus a back-up of material of rock wool or fibre glass give a very effective sound deadening quality to the material. The metal comes prefinished or can be painted on the job to suit the decorative scheme. Good quality prefinished material can be washed many times before repainting is necessary.

The acoustic batts used to back up this material should always be glass wool or rock wool, never of

wood fibre. The wood fibre back-up creates a fire hazard and it also provides food for pests. The units are removable for access to pipes, et cetera above.

Perforated Transite

This material comes in 2' by 2' squares, and is mounted on a system of metal channels. The transite is backed up with a rock wool or fibre glass batt which acts as a sound absorbing agent.

Transite is grey in colour and if other than a grey ceiling finish is required, it must be painted on the job. Painting does not naturally affect the acoustic qualities of the material.

It is admirable for wet or steamy areas since, by nature, the material is impervious to moisture. When it is used in wet or steamy places a special back-up batt should be used which itself is impervious to moisture.

The units are removable for access to the pipes, et cetera, above.

Fibre Glass Acoustic Board

This material is available with a variety of finishes and is mounted to the ceiling on a system of T bars. It is fire-resisting, impervious to moisture and comes with a washable surfacing. The units are removable for access to the pipes above.

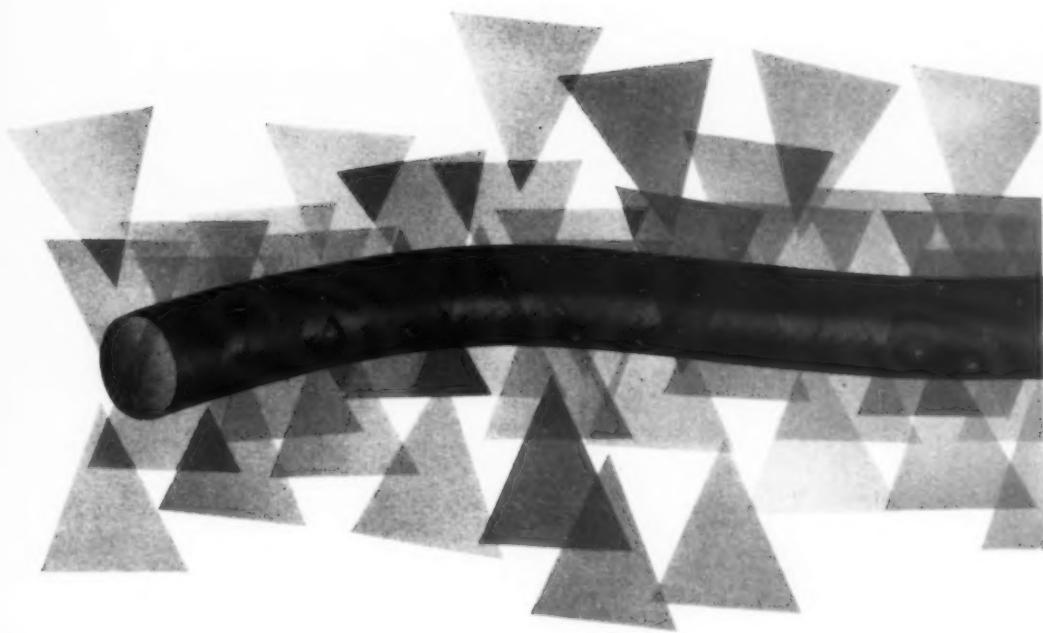
Acoustic Tile Materials

Acoustic tile is available in a number of materials and patterns. Material of this type requires a reasonably smooth undersurface to which the tiles are either glued, nailed or screwed. The tiles are available in different thicknesses. They are made from wood fibres or mineral fibres. The wood fibre material is the cheapest, but it should not be used in a fire-resistant building.

Tiles of this type are not easily washed or cleaned and therefore require eventual redecorating. Each successive coat of paint applied to the surface of the tile will reduce its sound deadening qualities to a certain degree.

Ceiling materials should be chosen for (a) sound absorbing qualities; (b) cleanliness—in certain areas such as operating rooms where a high degree of cleanliness is desired acoustic materials are suspect. By their nature they all have holes where airborne bacteria can lodge. We do not know if a proper study has ever been made to determine if acoustic ceilings actually do collect bacteria more

(concluded on page 148)



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WHEN federal grants for hospital construction became available in 1948, it was obvious that various minimum hospital construction standards would be required to ensure that these grants would be put to the best use in the interests of efficient hospital planning.

The word "standard" has various meanings. It can be described as "a degree of excellence required for a particular purpose", or "an average quality", and since my work is trying to uphold standards, I would be flattered if you would call me a "Standard Bearer".

Because federal hospital construction grants are determined on a bed basis, floor area requirements per bed were necessary in order to overcome the temptation of overcrowding. It was also obvious that certain facilities must be required to give proper and efficient care to the patient. Otherwise, such facilities and services might be eliminated to provide more patient accommodation.

The pressure upon a hospital for additional patient accommodation cannot be solved by overcrowding. Such a solution only produces other problems that might be worse than a waiting list, such as an increasing danger of cross infection, or a harassed, over-worked staff who cannot give proper bedside nursing care and generally jeopardize the good public relations of the hospital.

Hence *General Standards of Hospital Construction* was prepared by the Department of National Health and Welfare. All sections of the standards are not mandatory and are not exhaustive by any means. Many of you know the small blue book, and for those who may be considering a construction project, copies are available through the provincial health departments. These standards are issued in an effort to ensure that reasonably good facilities are available for all patients in hospitals which seek aid under hospital construction grants.

Perhaps it might be helpful to discuss certain items that are considered of importance when building a hospital. Fire prevention is one of these. Even in a fire resistant structure it is surprising the amount of combustible material

Mr. Hughes is chief of the Hospital Design Division, Department of National Health and Welfare. From a paper given at the Nova Scotian Institute.

Canadian Construction Standards

H. G. Hughes, F.R.A.I.C.

Ottawa, Ont.

that is contained therein, and the amount of smoke and heat it can generate.

No civil servant could place his minister in a position of approving a hospital for grant purposes and then have a loss of life in the hospital due to a fire which might have been prevented; nor should any hospital board permit patients under their charge to be subjected to the danger of fire without taking the greatest precautions. One must remember that 80 per cent of life loss in fires is due to smoke and hot gases, not direct contact with the flames. Therefore, *General Standards of Hospital Construction* pays particular attention to this problem.

Because of their special requirements, hospitals vary considerably from other buildings. First, they deal with the life and health of the patient. People come there suffering from various infections, and great care must be taken to prevent a patient contracting a new disease when being cured of the original one. Here cleanliness is next to godliness, and when planning, ease of cleaning is important — cramped, overcrowded areas defeat this purpose. *Standards* will state the minimum sizes these areas should be, determined by the type of work to be done in them, the work load itself, the size of the equipment required, and also by past experience of hospitals generally. It is possible that in some instances the designers might be over-generous in providing space, but this is very seldom the problem.

If an area were too large it would increase the original construction and maintenance costs, and could even reduce the efficiency of the staff. However, it is far more common to find the shoe on the other foot—with areas too small or left out of the plan.

Hospitals must provide facilities so that patients may be moved in their beds or on stretchers to and

from various services. This means that doors, corridors and elevators must be of a size to permit such moving. Therefore, minimum sizes of seven feet for corridors and three feet eight inches for such doors are mandatory, although we recommend eight feet and three feet ten inches respectively.

Because food service is very important, not only from the medical viewpoint but also from that of good public relations, a hospital must plan to provide palatable food to each patient's room and proper dining facilities for the staff. Here again, sufficient space should be provided in the dietary department so that efficiency and cleanliness can be maintained. Federal standards go into some detail regarding the sub-division of space allocations for proper refrigeration, dishwashing, pot washing and food preparation of various types. It is surprising to me how often garbage storage and its disposal is an after-thought, or is given the most cursory consideration. The suggested space requirements for the dietary department and dining space per person are given in our standards.

One problem that hospitals are continually facing is lack of storage space. It is one area that is always cut down when space need becomes acute. Each hospital requires approximately 20 square feet per bed for a central store room, which is sub-divided into general storage, bulk food store, furniture, pharmacy, et cetera. If there is not sufficient space, one finds hospital corridors looking like overcrowded warehouses.

We are all aware of the danger of cross infection in nurseries for newborns; during our first two weeks in this world we are very susceptible to infections which can spread rapidly through a newborn nursery. It is for this reason that our standards pay particular atten-

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tion to nursery planning. The maximum number of bassinets per nursery is 12, and the floor area per bassinet is 24 square feet. Here again, eight bassinets per nursery is the recommended number and 30 square feet per bassinet for the over-all area of the nursery is suggested. The type of bassinet that permits individual technique is required, unless individual cubicles are provided. A lavatory wash basin in each nursery is mandatory, and there must be no direct connection from nursery to corridor and nurses' work area and doctors' examination area. Terminal sterilization of infant formulae is encouraged. A suspect nursery is also a necessity, its capacity being approximately ten per cent of the number of regular bassinets.

And so *Standards* describes often in a general way, and sometimes in considerable detail, what is required in various hospital facilities. *Standards* will say what types of finishes are required in various areas for floors, walls, and ceilings. They give the desirable qualities and it is up to the architects to specify the exact material that meets the need, always with an eye to both the initial cost and maintenance cost of the product. It is also true that appearance becomes a factor in the choice as well. It is the duty of your architect to propose and advise on materials that would best suit your purpose.

One often hears the remark that "we must reduce extravagant adornments and unnecessary luxuries in our hospitals." This remark I find puzzling, because I have not found too much in the way of extravagances or luxuries in any hospital—money for building is too difficult to raise. What in fact are called luxuries are often items that greatly add to patient comfort and increase staff efficiency. Cheerful colours and chintz do not cost any more than drab colours—but to thoughtless people they sometimes appear to be more extravagant.

Let us take, for example, what is often called this mania for toilets in patient rooms. With early ambulation a patient can often be helped across a room to a toilet, but to travel down a corridor might well be out of the question. Such facilities could be shared by adjoining rooms; one toilet shared between two four-bed rooms is a great saving on staff time. It does away with bedpans being carried in the corridors, to say nothing of the

convenience to the patient. How bitter most of us are today when we cannot get a room with bath in a hotel.

And that brings to mind the next common saying—"the patients in our hospitals today want hotel accommodation and service." I don't think that is a fair criticism either. You would be quite chagrined if you were asked to share a hotel room with a stranger, but two or four in a hospital room is accepted by most people. I am reminded of an incident in a British hospital where the nurse superintendent was extolling the virtues of the 30-bed Florence Nightingale ward, where she stated the nurse could see all her patients at once, and even more important they could see her—this gave them confidence. However, on closer questioning she admitted she couldn't see all the patients at once as they were too far away and, most important, she admitted that if she were ill she would prefer a single room.

To return to *Standards*, studies have indicated that normal distribution of patients in a general hospital might be expected to be:

Surgical	—40 to 50 per cent
Medical	—20 to 25 "
Obstetrical	—12 to 25 "
Paediatrics	—10 to 15 "
Miscellaneous	—10 to 15 "

These percentages have a fair amount of leeway, but I think it is obvious there would be a variance due to the location of a hospital—whether it be in a rural or urban area, in an industrial area where the people are young with growing families, or in a community of older and retired people. Any estimate of need must take into account the future needs of a community. One always appreciates a plan that provides for future expansion and this can be achieved satisfactorily only if there are sufficient grounds to permit additions.

To digress slightly from the detailed standards of individual hospitals to the over-all standard ratio of bed need, we find that experience in the U.S.A. and elsewhere has shown that a standard ratio for bed need to population to be served by hospitals can be determined fairly accurately. It has been suggested that if we had an over-all Canadian ratio of seven beds per 1,000 population for active treatment and chronic beds combined, we would be in a healthy position. Further, it is respectfully suggested, if each province had

such a proportion, then they could cope with their bed need (although some provincial authorities consider the figure a bit high, while others doubt that it is high enough). It is often difficult to break down the figure of active treatment and chronic beds because many chronic cases are accommodated in the wards of our general hospitals. The figures most often mentioned vary between 2 and 1.5 beds per thousand to satisfy the need for beds for the chronically ill.

It is obvious that in urban areas that contain teaching hospitals and specialist services, more beds are required than the average. Similarly, in rural areas where specialist services are not available or feasible, the bed population ratio would be less than five beds per 1,000 population for active treatment beds. A city such as Halifax, which has teaching hospitals, and which draws patients from all parts of the province, will require many more beds than the average for the province. Although a considerable amount of time and effort will be spent in determining the bed need on a statistical basis, waiting lists of various hospitals and their average bed occupancy rate will be the governing factor in determining need.

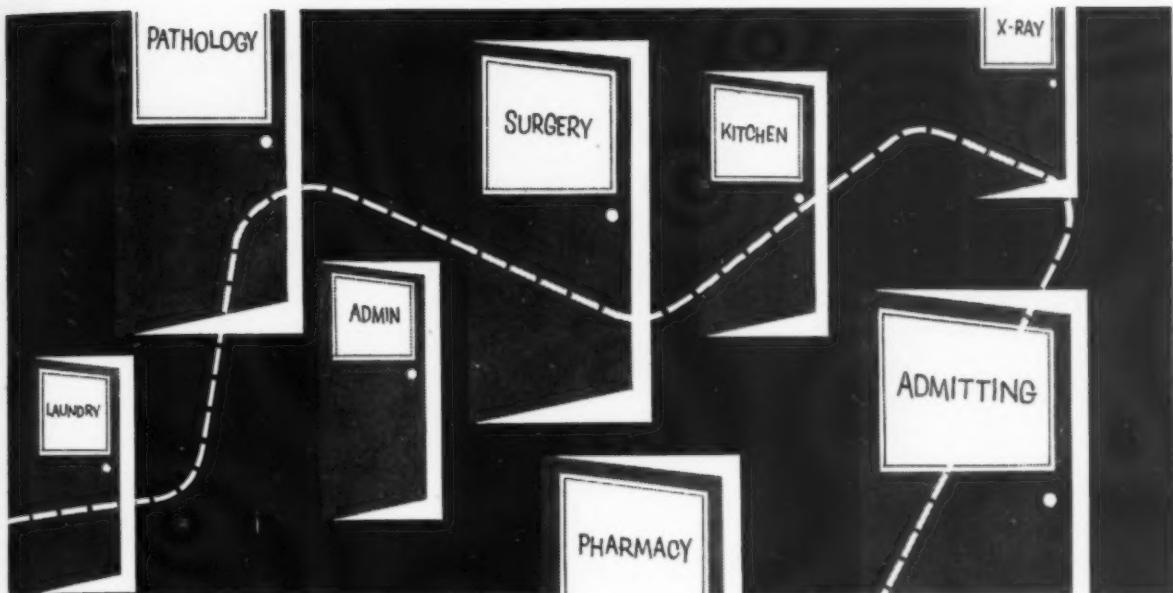
Standards are set up to help hospitals and their planners, not to make life more difficult for them. It is interesting to note that our Armed Forces, when building a hospital, compare their detailed plans with our federal standards, the *Ontario Guide for Hospital Building* and the *U.S.P.H.S. Elements of a General Hospital*. Where their plan proposals differ from these planning aids, they must justify the difference. When they have finished this exercise they know that their plans conform to what are considered good hospital facilities, and that they are not excessive in their proposals; neither have they forgotten any items, which it is so easy to do in the complicated task of planning a hospital.

Signature

The clerk in the coroner's office was puzzled. The young doctor had just requested that he change the death certificate. "Surely, you must know, doctor, that it's against the rules?"

"I do know, but this is urgent," the young doctor pleaded. "You see, in the space marked 'Cause of Death', I made a mistake and signed my name."—*English Digest*.

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F. Burns Roth, M.D.



W. Douglas Piercy, M.D.

THE twenty-fourth annual convocation ceremony of the American College of Hospital Administrators took place August 17, 1958. Twenty-five honorary fellowships were conferred. Members receiving fellowships numbered 112, while 223 nominees became members and 366 persons were admitted to nomineeship.

Canadians Honored

Two Canadians — Dr. W. D. Piercy, executive director of the Canadian Hospital Association, Toronto, Ont.; and Dr. F. Burns Roth, deputy minister, Department of Public Health, Regina, Sask.—

had honorary fellowships conferred upon them.

Now Are Fellows

Herbert H. Bassett, administrator, Victoria Union Hospital, Prince Albert, Sask.

Robert Bruce Ferguson, administrator, Humber Memorial Hospital, Weston, Ont.

James Crosby Johnston, M.D., administrator, Calgary General Hospital, Calgary, Alta.

Carman J. Kirk, superintendent, Victoria Hospital, London, Ont.

Thomas Edwin Kirk, M.D., superintendent, Camp Hill Hospital, D.V.A., Halifax, N.S.



A. L. Swanson, M.D.



Robert B. Ferguson.

Sister Madeleine of Jesus, s.g.c., assistant administrator, Ottawa General Hospital, Ottawa, Ont.

Sister Mary of the Assumption, Provincial House, Kingston, Ont.

Sister St. Philippe, administrator, Ottawa General Hospital, Ottawa, Ont.

Arthur L. Swanson, M.D., executive director, University Hospital, Saskatoon, Sask.

Max Boake Wallace, superintendent, The Toronto Western Hospital, Toronto, Ont.

Members

Ernest N. Boettcher, M.D., medical superintendent, St. Joseph's Hospital, Victoria, B.C.

Kenneth E. Box, administrator, Belleville General Hospital, Belleville, Ont.

Sister Cecile Maurice, administrator, St. Boniface Sanitarium, St. Boniface, Man.

Eric J. Davies, assistant administrator, Verdun Protestant Hospital, Montreal, Que.

Sister M. Estelle, administrator, St. Joseph's Hospital, Toronto, Ont.

Maj. Muriel Everett, R.N., superintendent, Grace Hospital, Vancouver, B.C.

Sister M. Joan, administrator, St. Joseph's General Hospital, North Bay, Ont.

James Allan Mahoney, M.D., C.O., R.C.A.F. station, Rockcliffe, Ottawa, Ont.

James A. McNab, administrator, General Hospital of Port Arthur, Port Arthur, Ont.

Allan Kerr McTaggart, administrator, Brandon General Hospital, Brandon, Man.

Jean Mercille, M.D., general administrator and medical director, Hôpital Ste-Jeanne d'Arc, Montreal, Que.

G. Kerle Palin, administrator, Alexandria Hospital, Montreal, Que. (Now at Lachine General Hospital, Montreal, Que.)

Harry R. Slade, administrator, Powell River General Hospital, Powell River, B.C.

Eric R. Willcocks, superintendent, Toronto East General and Orthopaedic Hospital, Toronto, Ont.

Nominees

Mary L. Finger, assistant superintendent, Women's College Hospital, Toronto, Ont.

Robert J. Long, administrator, Northwestern General Hospital, Toronto, Ont.

Sister Lucienne Lapierre, s.g.m., administrator, St-Jean Hospital, St-Jean, Que.

(concluded on page 90)

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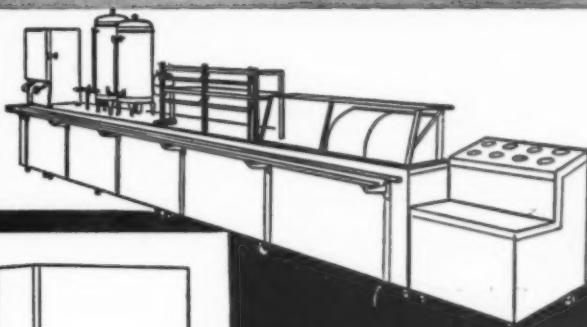
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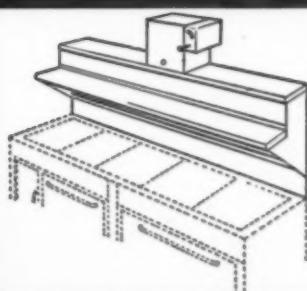


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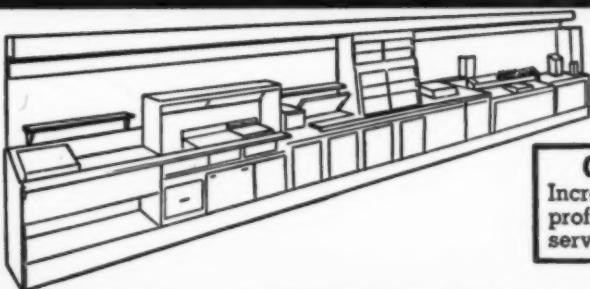
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(concluded from page 88)



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Sister St. Philippe

Michael R. Macdonald, M.D., assistant superintendent, Victoria General Hospital, Halifax, N.S.

Sister Madeleine Desfosses, Comte de Terrebonne, Que.

Sister Marie Jeanne Tougas, administrator, Regina Grey Nuns' Hospital, Regina, Sask.

Sister Mary Albert, administrator, St. Mary's Hospital, Inverness, N.S.

Sister Mary Fintan, assistant administrator, St. Joseph's Hospital, Toronto, Ont.

Albert Nantel, M.Sc., D.H.A., assistant director, Hôpital St-Luc, Montreal, Que.

William O'Neill, business manager, St. Paul's Hospital, Saskatoon, Sask.

Sister M. Patricia, administrator, Sudbury General Hospital of the Immaculate Heart of Mary, Sudbury, Ont.

Sister Pauline Maillé, r.h.s.t., superintendent, Hôtel-Dieu-de-Montréal, Montreal, Que.

J. Sydney Renton, administrator, Sydenham District Hospital, Wallaceburg, Ont.

E. Carey Robinson, administrator, St. Catharines General Hospital, St. Catharines, Ont.

Hugh F. Ross, assistant administrator, St. Catharines General Hospital, St. Catharines, Ont.

C. A. Sage, assistant superintendent, Hospital for Sick Children, Toronto, Ont.

G. E. Thornton, administrative assistant, Wellesley Hospital, Toronto, Ont.

James G. Wilson, superintendent, Brockville General Hospital, Brockville, Ont.

Carman J. Kirk, M.D.



Thomas E. Kirk, M.D.



Sister Madeleine of Jesus



Max B. Wallace

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A Guide to
Architectural Drawings
(concluded from page 55)

with a legend. As the drawing has been reduced in size for the magazine illustration, a graphic scale is also included. The columns, which are a part of the bones of the structure, are shown as reinforced concrete by means of the symbol of dots and small triangles. If they were steel they would be shown by their shape, which would be an H or an I.

In order to be able to appreciate sizes, know the exact size of your own office, and learn to appreciate just what a four-bed or a two-bed ward looks like on plan and in reality; what their sizes are and what is the size of a hospital bed at $\frac{1}{8}$ and $\frac{1}{4}$ inch scale. Study the space required in a patient's room to provide good nursing care without items of furniture and fixtures impeding circulation. Soon one acquires an eye for sizes at various scales and can judge whether equipment and furniture for a certain task can fit into a room and provide sufficient space to carry out the functions for which the room has been designed, without being either too cramped or too generous.

When one is familiar with reading a plan, and the various symbols are no longer a frustration, it is possible to study the plan in the over-all concept. It is then that the administrator is able to analyze the relationship of the various elements and to ensure their proper integration; to study traffic flow throughout the building and to assure himself that important items have not been omitted. It becomes possible to discuss the proposals with various interested members of the staff, and for him, in turn, to explain sizes and symbols shown on the drawings. However, this gratifying accomplishment must not lead him along the precarious road of becoming his own designer. A good architect is a good interrogator. Provide him with all the information, then sharpen your critical faculties and work with him, questioning and analyzing each phase of the work. If this is done the result should be no major errors or omissions, and a minimum of minor ones.

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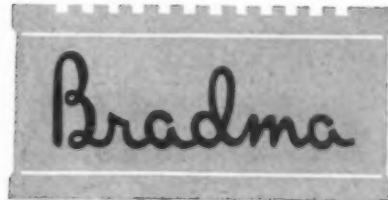


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Communication—a tool

ONE of the most important aspects of any administrative enterprise is communication, which includes all that is involved in the transmission of information from person to person and from place to place.

The primary division is between written and verbal communications. Each type has its own merits and demerits; written communications are valuable mainly because they constitute a permanent record. Therefore it is desirable that any matters to which constant reference need be made or which are of great importance should preferably be written. In general, fewer misunderstandings should arise from written communications than from verbal ones because they are available for constant reference and do not depend upon recollection and impression. In written communications, we must remember that better writing makes for clearer thinking. In writing, it is necessary for us to be precise and logical; in short, to think clearly and reasonably. To be effective, any piece of writing must fulfill clearly the purpose for the group to whom it is directed and it should be clear, complete and concise.

Verbal communications suffer from a serious defect—impermanency. Whatever passes verbally between A and B is gone forever once it is uttered and the subsequent effect of the verbal exchange depends entirely upon the good faith and recollection of A and B. Nevertheless, verbal communications are ideal in many circumstances. They have the tremendous merit of providing scope for discussion. Fine shades of meaning, clarification of doubtful points, and perhaps even improvement upon original ideas are all readily fostered with verbal communications, and in many circumstances this is a much more suitable medium of communication than the more arid written word. It is also through verbal communication that ideas

Sister Catherine Gerard
Halifax, N.S.

may be pooled and questions may withstand the fire of criticism and debate. And so, despite the defects of the lack of permanency, verbal communications should not be regarded as necessarily inferior to written ones.

We administrators are, I am sure, keenly aware of this responsibility entrusted to us, and of the necessity of having the co-operation of all hospital personnel. If we wish to have a well organized hospital with the best nursing care for our patients, we must be willing to delegate authority and to uphold the decisions made by the persons placed in key positions. We know that there has been criticism directed at the administrator who neglects various areas of his functions. Here is where the responsibility of delegating authority can prove to be essential: This can only be done through clear communication. There should be charts showing the lines of authority for the hospital in general and also one in each department for that particular area. A clear definition of responsibilities put in writing ensures that all assignments which are necessary for proper performance of a function are made. It helps to eliminate the twin dangers of giving individuals too much or too little to do.

Authority should be delegated in proportion to the responsibility to be discharged. A supervisor who is given a task to do must also be in a position to give the orders and make whatever decisions are necessary to do the task properly. Making effective decisions depends upon having adequate facts. Authority quickly becomes ineffective if it is not backed by an adequate system for gathering, reporting and interpreting information. A person should be accountable only to the person who delegates the authority. The degree of delegation should be proportional to the availability of effective controls. Controls, when properly developed, provide a basis for continuing examination and improvement of the work being done.

They tell the administrator what results he is getting. This kind of communication is vital.

The goal of every hospital is to cure patients. To cure patients requires the combined skills and abilities of many people — the physicians, nurses, occupational therapists, technicians and the business office personnel. The problem is to effect a cure with maximum efficiency and with maximum satisfaction for all individuals involved. It becomes evident that leadership must be rational, based on competence and knowledge. Each person must examine his interpersonal relationships with each member of this nursing team and ask, "Am I acting in the best interests of the patient, or myself?"

If all hospital personnel realize that their complete co-operation is essential to run an A-1 hospital, the administrator has won half the battle. They feel that they belong; it is their hospital, so naturally you get loyalty and support.

We are professional people, asking administrative decisions in a specific kind of social institution — the hospital. We formulate and implement the policies that make the hospitals what they are. We enjoy and suffer authority. We hire and discharge people. We share authority with the board of directors and the medical staff. We are, in fact, surrounded by several groups. We are faced with a beehive of patients who are, however, not organized—except as they become friends. We are caught between a number of worlds, such as the "board", various departments within the hospital, the resident and visiting staff, the nursing hierarchy, and the public. The last is a marvelous entity which is entirely invisible and in many ways still unknown. This makes it all the easier to welcome any one concrete individual, or delegation of individuals, to learn what the public knows and wants. In any case, whatever the extent of our influence and power, we are responsible for the way some things are or are not done. This means that we do not always get recognition for our efforts, though we can count on getting blamed for more matters than we can possibly influence.

Let us not forget that the better part of communication may be in listening! It is important to keep quiet sometimes and just listen to problems. It is helpful sometimes to ask questions to boost a person's

(concluded on page 134)

Sister Catherine Gerard is superintendent of the Halifax Infirmary. She gave this paper at the Maritime Hospital Association's convention, June 1958.

What every O. R. Nurse should know about A·S·R STERISHARP blades

Q. What is a SteriSharp?

A. It is a sterile-packed surgical blade made from a special alloy of extremely hard stainless steel. Like all stainless-steel surgical instruments it will not rust or corrode in hospital use.



Q. Aren't all sterile-packed blades made from stainless steel?

A. No, only SteriSharps. All others are made from ordinary carbon steel which rusts, corrodes and dulls quickly when autoclaved or kept in solution.

Q. Are SteriSharp blades sharper than carbon steel blades?

A. Yes. Sterisharps' imported high-chrome alloy Swedish steel is hardened, tempered, ground and sharpened under processes developed by A·S·R to give it a sharper, longer lasting cutting edge.

Q. Can I autoclave the sealed SteriSharp packet?

A. Yes. Neither autoclaving nor dry-heat sterilizing harms the packet or the blade inside. This means you can include any number of SteriSharp packets on the instrument tray. The sterile nurse can then open blades as needed. And all unopened packets can be returned to stock.

Q. Can I autoclave SteriSharp blades out of the packet?

A. Yes. Unlike carbon steel blades which blacken, rust and lose their edge when autoclaved, SteriSharp blades can be autoclaved repeatedly without damage. Thus, SteriSharps which have been opened but not used can be returned to stock. This eliminates blade waste. SteriSharps can be stored indefinitely without harm.

Q. How does A·S·R make sure that SteriSharps are 100% sterile?

A. SteriSharps are ultrasonically cleaned before packaging. The packets are sealed securely and are heat-sterilized at a time-and-temperature cycle well above highest hospital requirements. Each lot is sampled twice, and blades are tested for sterility by A·S·R's own bacteriologists according to USP XV (revised). Each lot is also checked by an independent laboratory.

Q. How can I be sure SteriSharps come to me 100% sterile?

A. Test them in your own laboratory. We will be happy to send you a detailed description of our sterility testing methods.

Q. Can SteriSharps be re-used?

A. After their work in the Operating Room, SteriSharps can be autoclaved and distributed to Pathology and other blade-using departments.

Q. How do SteriSharps compare in cost with other sterile-packed blades?

A. SteriSharps cost less.

Q. How do SteriSharps compare in cost with ordinary carbon steel blades?

A. SteriSharps do away with jars and solutions and eliminate blade waste. In addition, the greater durability of stainless steel means longer blade life. Surgeons report that during procedures where extensive cutting is required, one SteriSharp does the work of as many as six ordinary carbon steel blades. Hospitals using SteriSharps report dollar savings of 25% and more over conventional nonsterile carbon blades.

Q. Do SteriSharps come in all standard sizes and fit all standard handles?

A. Yes. In addition, when you contract for SteriSharps, you will receive FREE as many stainless-steel dispensers as you need for your O.R. suite and other blade-using departments.



Q. How can I find out more about SteriSharps?

A. Write: A·S·R HOSPITAL DIVISION, Personna Blade Co., of Canada Ltd., 2055 Desjardins Ave., Montreal 4, P.Q.

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How to Avoid Medico-Legal Problems

(Conclusion)

Precautions against Medico-Legal Problems

IT SHOULD not be necessary to list obvious general precautions, but you might wish to be reminded that neglect of one of the following precautions has caused some hospital to be involved in a medico-legal case which should have been avoided.

Hospital records are to be kept secret

The regulations under The Public Hospitals Act tell you when you may divulge information contained in a patient's hospital records. Instructions on preserving the secrecy of hospital records should, of course, not be given only to nurses and doctors, but also to all members of the lay staff of the hospital.

You, as administrator, should see to it that the number of persons having access to medical records is reduced to an absolute minimum. The person in charge of the records room should even be forbidden to produce files for any members of the staff who are not properly authorized to view them.

Similarly, the x-ray and pathology departments' personnel should be warned against giving diagnoses or other information out over the telephone, unless they are absolutely certain of identity of the person who is requesting the information, and know that he is legally entitled to receive the knowledge about the patient.

Narcotics, drugs and medications

These should be kept safely by responsible professional members

Frederick Evis, B.A., M.D., D.P.H., is a barrister and solicitor, and medico-legal consultant to the Ontario Hospital Services Commission. From a paper presented at the O.H.A. Convention, October, 1957.

Frederick Evis
Toronto, Ont.

of the staff, and they must be prepared and handled with such care that "harm will not arise to those who depend upon" the skill of the hospital staff in such matters. *Budgen v. Harbour View Hospital et al (1947) 2 D.L.R. 388*, is a judgment of the Nova Scotia Supreme Court in which other cases on this subject are cited.

Aseptic precautions

Precautions against the spread of infection during hospital procedures should, of course, always be as flawless as possible according to the state of scientific knowledge at the time.

Operating room precautions against explosion and fire

These are most important because many patients have been injured or killed as the result of operating room accidents. To reduce this risk as much as possible the correct construction of operating rooms and adjacent rooms and corridors, the use of proper grounding devices in operating rooms, the wearing of conductive footwear and proper clothing by all those working in the operating room, the use of non combustible anaesthetics when electric cautery is to be employed, the forbidding of woollen blankets in the operating room, the use of non combustible germicides, and similar precautions should be insisted upon and frequently reviewed with those concerned.

Inspection of equipment, appliances and instruments

Such inspection should be carried out routinely and periodically and anything found to be defective should be replaced or removed from use for repairs forthwith. Particular attention should be paid to the detection

of possible leaks in anaesthetic machines and associated equipment.

It is not required that a hospital shall provide the latest and best pieces of equipment and appliances available. The hospital will discharge its duty to supply fit and proper equipment, appliances and instruments, if those it provides are such as to be generally recognized as the usual and efficient equipment, appliances and instruments in customary use at the time.

Care and operation of dangerous equipment

This should only be entrusted to those who are fully qualified to operate these pieces of equipment and appliances, and to be alert to the possibility of the accidents which can occur in the use of such equipment and appliances. Such personnel should be instructed to be most clear and explicit in any explanations which may be given to patients and in any requests involving the co-operation of the patient, for example, in giving warning to the operator of any heat, pain, or the like, which may develop, as a danger signal during the treatment.

Suicides and attempted suicides

Suicide and attempted suicides are a fairly frequent problem in some localities and deserve special mention. It is established that the hospital does not ensure the patient's safety, and the law does not require anyone to guard against events which a reasonable person, under the circumstances, would not anticipate as being likely to happen.

However, the hospital has been held liable for not taking extra precautions when a patient's case history, or his condition, or conduct is such that a reasonably competent doctor or nurse should anticipate suicide. If the hospital does not take reasonable extra precautions to guard such a patient from himself and he succeeds in suicide, or is injured in the attempt, the hospital is liable.

If, on admission to hospital, a patient's condition clearly indicates that he has attempted suicide, the matter should be promptly reported to the local police. Because attempted suicide is a crime, it is usual for the local authorities to supply an officer to watch and guard the patient in hospital until his discharge. This, of course, will

(continued on page 152)



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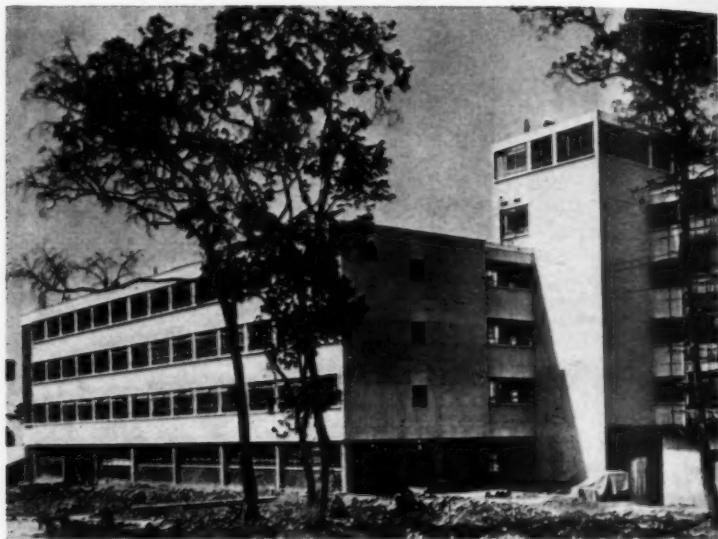
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In Northern Rhodesia

MEN AT WORK

TODAY, Kitwe is the largest town in the copper belt of Northern Rhodesia; 30 years ago it was a stretch of virgin African bush studded with swamps—a breeding ground of fevers. The growth of the twin towns Kitwe and Nkana is an object lesson in rapid economic development, which has resulted from careful planning and use of all resources and experience by Rhodesian and United Kingdom experts.

In 1935 a hotel stood a few hundred yards from the small copper-mining township of Nkana. Nkana has remained the mining town, whose social amenities and public health facilities are provided by the Rhokana Corporation Ltd., a copper mining company, but around the hotel Kitwe has grown. Kitwe has become the shopping centre and the home of expanding secondary industries, its bustling streets flanked by modern buildings.

Until now the people of Kitwe have been able to use the hospital facilities provided by the mining company, but the rapid growth of the town and its important position in the copper belt calls for a greater number of both beds and out-patient clinics.

Since the nearest modern government hospital is 200 miles away, the Northern Rhodesia Ten-

Year Development Plan, established in 1953 before the Federation of Rhodesia and Nyasaland, provided for a new hospital to be built and maintained by the central government. The Kitwe hospital will have both European and African patients.

Construction of the hospital, which is to carry the name of the late Lord Llewellyn, first Governor General of the Federation, has been in progress since 1954, and was to be completed by the middle of 1958. Brian Colquhoun and Partners, London, were responsible for the structural design and the installation of specialist services at the hospital. One wing

was designed by the Public Works Department of the federal government, applying construction methods not previously used in Rhodesia.

The Llewellyn Hospital covers an area of 100 acres, the second largest construction project in the Federation. There will be 318 beds, and accommodation has been planned to provide room for more patients, if necessary, without any reduction in amenities or strain on services. The design also allows for vertical extension.

In some buildings the partition walls can be re-arranged to meet changing requirements. The major buildings are connected by tunnels in which all services are laid, concealed but easily accessible through vertical ducts. Kitchens are located centrally in a special building linked to the other blocks.

One interesting feature is the installation of a piped medical gas supply system in the operating theatre block. An alarm device will give audible warning in various parts of the hospital, including the theatres, should the gas supplies fail.

The main general wards, to be opened in stages, are planned on the parallel system of bed placing, so that each patient will have a view of Kitwe and enjoy the sun—

(concluded on page 122)



A ward block, Llewellyn Hospital, Kitwe, Northern Rhodesia.



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Dietary Problems in the Small Hospital

THE small hospital, like larger institutions, has many dietary problems to solve. Yet, unlike larger hospitals, it often has neither the personnel nor the facilities required to operate most effectively. This is why the services of a dietary consultant are welcomed by so many small institutions. In New Brunswick only 15 of the 42 hospitals have dietitians. The remaining 27, ranging from 10 bed community hospitals to a large provincial hospital with 1,200 patients, have received varying periods of service; and a diversity of requests pertaining to many different problems have received attention. However, considering the average small hospital (40-50 beds) three of the most common problems relate to control of supplies, menus (regular and special diet) and patient food service. These phases of dietary service will be discussed briefly in relation to personal experiences in the hospitals of New Brunswick.

Control of Supplies

In the smaller hospitals, there is often inadequate control of supplies. This inadequacy results in the inefficient ordering of supplies and inaccurate food cost accounting. As well, there is a tendency for supplies to be used up more quickly when no constant check is maintained.

To overcome this defect in the organization of the dietary department, a perpetual inventory should be established. This procedure was initiated in one of our hospitals (70 beds) and has proved to be a tremendous asset to the functioning of this department.

A perpetual inventory system operates as follows:

1. A separate card or sheet is used for each item supplied in the department.

2. Columns with headings for date, amount received, unit cost, amount issued, and balance on

The author is dietary consultant for nutrition services, Maternal and Child Health Division, Department of Health and Social Services, Fredericton, N.B.

Marilyn L. Trenholme, B.Sc., P.Dt.,
Fredericton, N.B.

hand are made on the card or sheet.

3. Each time supplies are delivered an entry is made for each item on the card; and each time an item is issued from the storeroom, another entry is made and the balance noted.

In larger institutions such records are usually kept by the purchasing agent or storekeeper. However, in small hospitals, they should be kept by the person in charge of the dietary service, since in most institutions of this size the only storeroom for food supplies is in conjunction with the preparation and service areas. It follows that whenever possible one, (or no more than two) persons should be responsible for receiving supplies, issuing daily requirements, and keeping the records.

The ordering of supplies is greatly facilitated by this easy reference to the balance on hand at any given time. Also facilitated is the task of estimating quantities to be used over a period of time. Expenditures for the various items may be quickly calculated for any period of time by simply adding the amounts issued for that time and multiplying by the unit cost.

Menus—Regular and Special Diets

Satisfying patients' likes and dislikes is just as much a problem in the small hospital as in the large one. Experience in these smaller institutions has indicated the feasibility of instituting a simple system of selective menus for all patients. Three of our hospitals (41, 54, and 65 beds) have found that these menus greatly increase patient satisfaction without appre-

ciable increasing the work involved. Food costs have actually been lowered, due to the fact that much less tray waste occurs. This is especially true of the breakfast meal.

We recommend that a three-week rotating menu be planned. (It is timely to mention that all institutions adopting a system of rotating menus have found the ordering of food supplies to be greatly simplified.) One hospital has developed two three-week menus—one for fall, winter and spring, and one for summer. However, in small institutions it is a simple matter to change an item or two to correspond with seasonal trends.

In selecting food combinations for the selections on the menu, it is advisable to consider foods suitable for the most common special diets; e.g., diabetic, bland, low fat, soft, light. One item should always be acceptable for these diets.

The following menu is a sample of the 21 day selective menus planned and distributed to hospitals in New Brunswick. The hospitals are also supplied with corresponding daily patient menus in quantity, if requested.

Week 1, Monday

Date _____ Daily Menu

Patients are to underline clearly the items they desire from tomorrow's menu, taking into consideration the choices permitted.

Breakfast

Vitaminized Apple Juice

or

Orange Halves

Cream of Wheat or Shredded Wheat

Scrambled Egg or Cheese

Plain or Buttered Toast

(white, whole wheat)

Marmalade or Jelly

Tea — Coffee — Postum — Milk

Dinner

Chicken Rice Soup or Tomato Juice

Swiss Steak or Baked Haddock

Mashed or Baked Potato

Green Peas or Corn Niblets

Deep Apple Pie

Jello — Junket — Custard

Milk — Tea — Postum

Supper

Vegetable Chowder or Pineapple Juice

Creamed Chicken or Cold Veal

Baked Potato — Tossed Salad

Applesauce or Canned Fruit

Oatmeal Cookies

Milk — Tea — Postum

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The distribution, collection, and (concluded on page 122)

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Annual Meeting of the Maritime Conference

A VERY successful meeting of the Maritime conference of the Catholic Hospital Association of Canada was held at Notre Dame d'Acadie College in Moncton, N.B., on August 5 and 6. The 34th annual meeting, it was attended by many delegates from the four Atlantic provinces.

The convention was formally opened with a celebration of Holy Mass by His Excellency Most Reverend Norbert Robichaud, Archbishop of Moncton. The sermon of the Mass was given by Rev. Father J. B. Nearing, Sydney Mines, spiritual director of the conference.

At the opening session, His Excellency Archbishop Robichaud greeted the delegates, as did M. M. Baig, mayor of Moncton, representing the city. Rev. Father Nearing, who is also the president of the Catholic Hospital Association of Canada, expressed greetings from this association.

A forceful address on "Changing Conditions Present New Opportunities to our Catholic Hospitals" was presented by Dr. J. A. MacMillan of Charlottetown, P.E.I. He spoke not only of the opportunities of service to the sick, but also of the challenges being currently encountered. In this, the keynote address, Dr. MacMillan told us of

the changes in the attitudes of the patients, as well as the changes in their needs (which are more varied) and in their economic status. At the same time, the needs of the hospitals have grown; new services are required and old ones must be expanded; costs are rising ten per cent each year and all hospitals face the problems coming with hospitalization plans. He warned us that under the national health plan there will be a levelling off of hospitals, and levelling always leads downward to mediocrity. Therefore, we were urged to retain our ideals of dedicated service.

Dr. F. A. Dunsworth, associate professor of psychiatry and director of the Child Guidance Clinic at Dalhousie University, Halifax, chose as his subject "Tolerance". He told how tolerance can be practised in our daily contacts with others. It can also be applied in our relations with our patients, helping us to better understand their attitudes and problems, since over 50 per cent of them suffer from emotional disturbances.

With the title of "Meeting the Objectives of the Catholic School of Nursing", a symposium was held under the chairmanship of Sr. Marie Simone, c.s.m., Antigonish, N.S. The participants were: Sr. Peter Claver, Glace Bay, N.S., Sr.

M. Barbara and Sr. M. Donald, both of Sydney, N.S. The subjects discussed were: "Providing a Christ-centered Curriculum", "Preparing the Nurse for Christian Family Living" and "Organizing the Extra-Curricular Program". Father Ernest Chiasson, chaplain of St. Rita's Hospital, Sydney, talked about the relations of the chaplain with the school of nursing.

Rev. Father G. L. Kane, director of religious education, Diocese of Antigonish, spoke on "The Crisis of Vocations to our Sisterhoods"—a topic which aroused much discussion from the audience.

A panel discussion on "The Spiritual Care of the Critically Ill" had Rev. E. Godin, chaplain, Hotel Dieu, Bathurst, N.B., as its moderator. The participants were chaplains of four of our hospitals: Rev. R. McKenna, Chatham, N.B., Rev. A. Richard, Moncton, N.B., Rev. Father Trainor, Charlottetown, P.E.I., and Rev. E. Chiasson, Sydney.

Sr. M. Ruth, administrator of St. Joseph's Hospital, Saint John, N.B., and formerly of Vancouver, B.C., gave a very interesting paper on "Experience under a Hospital Insurance Plan". This, too, evoked considerable discussion. Another interesting feature was a film, titled "For the Love of Life".

In her report, Sr. Clarissa, c.s.m., president, emphasized the various problems confronting our hospitals. She also reminded us of the sudden death of Sr. Francis de Paul of the Sisters of Charity of the Halifax Infirmary, who had been a very active and interested member of our conference for many years.

The report of the delegate to the Canadian Hospital Association meeting in Toronto was given by Sr. M. Ruth, and that of the delegates to the Catholic Hospital Association in Atlantic City by Sr. M. Clarissa, president.

Father Nearing gave the report on legislation; Sr. St. Joseph gave it on the Ways and Means committee; Sr. M. Simone reported on the Nurse Education committee, and Sr. Kerr on publicity.

Since the elections are held biennially, the following members retain their offices: Sr. M. Clarissa, c.s.m., Sydney, president; Sr. Catherine Gerard, S.C. Halifax, 1st vice-president; Sr. Kenny, r.h.s.j., Chatham, 2nd vice-president, and Sr. Maria Josephine, c.s.m., Sydney, secretary-treasurer.

Coming Conventions

- Oct. 15-17—The Saskatchewan Hospital Association, annual meeting and institute, Bessborough Hotel, Saskatoon, Sask.
- Oct. 18-19—The Catholic Hospital Conference of Saskatchewan, annual convention, Saskatoon, Sask.
- Oct. 21-23—Annual convention of the Associated Hospitals of Alberta, Jubilee Auditorium, Edmonton, Alta.
- Oct. 26-27—Catholic Conference of British Columbia, annual meeting, St. Paul's Auditorium, Vancouver, B.C.
- Oct. 27-29—Ontario Hospital Association, annual convention, Royal York Hotel, Toronto, Ont.
- Oct. 28-31—Annual convention of the B.C. Hospitals' Association, Hotel Vancouver, Vancouver, B.C.
- Oct. 30-31—Ontario Conference of the Catholic Hospital Association, St. Joseph's Hospital, Toronto, Ont.
- Nov. 3-8—College of American Pathologists, 12th annual meeting, and American Society of Clinical Pathologists, 37th annual meeting, Congress Hotel, Chicago, Ill.
- May 11-13—Canadian Hospital Association, 15th biennial meeting, Queen Elizabeth Hotel, Montreal, Que.



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◀ Book Reviews ▶

MICROBIOLOGY AND EPIDEMIOLOGY, fourth edition, by LaVerne Ruth Thompson, R.N., M.A. Published by the W. B. Saunders Company, Philadelphia, Pa. 1958. Illus. Pp. 581. Price \$6.00.

The fourth edition, revised in the light of modern research, is a text which highlights the concepts of epidemiology, since, the author feels, the rôle of the pathogen in causing disease has long been over-emphasized. She wants to place the host and environment in their proper perspective. The text is simple, clear, and direct, and is meant for the student concerned with health and welfare rather than pure bacteriology. It is on the microorganisms which influence man that the stress is laid, with disease control and prevention kept firmly in mind.

The nature, response to and influence of microorganisms on their surroundings, plus general aspects of parasitism, infection and body defences are dealt with. A new feature is the chapter on the ecology of health and disease which includes material on the viruses, properdin system, Salk vaccine and adenoviruses. An appendix tells of the use and care of microscopes; and a glossary of technical terms and index complete the text.

THE EXTENT OF CANCER ILLNESS IN THE UNITED STATES, by the Biometry Branch of the National Cancer Institute. Published by the U.S. Department of Health, Education and Welfare. Diags. and Charts. Pp. 23.

There are 31 questions with accompanying charts and tables in this paper-backed publication prepared by the Biometry Branch of the United States' National Cancer Institute. They represent a distillation of some of the available evidence on cancer in the U.S. population. It covers trends and variations in cancer mortality and incidence, some aspects of diagnosis, treatment, and survival prospects for diagnosed cancer cases. This information has come from three primary sources: the reports of mortality statistics by the National Office of Vital Statistics in the U.S., from surveys con-

ducted by the U.S. National Cancer Institute, and from the State cancer register kept by the Connecticut State Department of Health.

TEXTBOOK OF OBSTETRICS AND OBSTETRIC NURSING, Third Edition, by Mae M. Bookmiller, R.N. and George Loveridge Bowen, A.B., M.D. Published by W. B. Saunders Co., Philadelphia and London. 1958. Pp. 725. Illus.

Here the drama of childbirth is presented in all its phases. Beginning with an outline of the history of obstetric care, the book goes on to offer detailed instruction on the various stages of childbirth. Medical explanations, covering normal and abnormal births, are of paramount importance. Interspersed with these, however, are bits of advice to be given to the mother herself, on such subjects as suitable clothing, proper diet, and care of the newborn infant at home.

Clear and effective in presentation, the textbook contains a large number of diagrams and photographs, as well as a useful glossary. Each section is marked clearly, and the duties required of the nurse in many different stages and types of treatment are made plain. The authors have aided the obstetric nurse still more by including a number of self-evaluation examinations.

This is a well-planned, informative textbook, one that covers the field of obstetrics with thorough care, and one that offers much valuable knowledge to the student nurse.

THE PSYCHIATRIC HOSPITAL AS A SMALL SOCIETY, by William Caudill. Published by Harvard University Press, Cambridge, Mass., 1958, and in Canada by S. J. Reginald Saunders and Company Limited, Toronto. Pp. 406. Price: \$7.15.

For several months, the author, who is a social anthropologist, was an observer at a small psychiatric hospital. The result of his observation is this book—a detailed account of the vast pattern of interrelations and communication within a small society. Much of his information came from the re-

sponses received when patients and staff were shown and asked to explain a single set of drawings depicting a wide variety of common situations in the life of the hospital.

A general disturbance among the patients was what led the author to bare the conflicts within the entire community. He carefully traces the withdrawal of the staff groups from each other—preceding and paralleling a withdrawal of the patients from each other and from the staff as a whole. Thus this study of a psychiatric hospital, by carefully examining the parts played by individuals and groups inside, presents an informative picture of the complex human behaviour in a small society.

FROM BED TO VERSE, by John H. Hayes. Published by the Physicians' Record Company, Chicago, Ill. 1958. Pp. 144.

A collection of hospital humour with occasional serious reflections, this book is ideal for a reader in the mood to just browse through its pages. One can open the book at random and be assured of a few minutes' pleasure, for the publishers present an entertaining series of the author's poems, anecdotes, word definitions, et cetera.

Mr. Hayes has worked for many years in the hospital management field; his humour is always gentle, reflecting his deep attachment to such health institutions. Anyone can enjoy his book, and it is most highly recommended as a Christmas gift, especially to a hospitalized friend in need of some warm and companionable humour.

GOODNOW'S HISTORY OF NURSING, by Josephine A. Dolan, R.N., M.S. Published by W. B. Saunders Co., Philadelphia and London. 1958. Pp. 422. Illus. Price \$5.00.

The practice of nursing, the author believes, began with primitive man and developed in step with him. Therefore, in this tenth edition of Goodnow's nursing history, Josephine Dolan has rewritten the first seven chapters of the book (which cover the ground from primitive man to the Renaissance) in order to superimpose the history of nursing on the history of mankind. To increase the student nurse's understanding of historical background, a number of pictures have been included. Each chapter

(continued on page 156)

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Notes on Federal Grants

Construction

Extension and remodelling of the existing third floor of the Concordia Hospital, Winnipeg, Man., to give a complete maternity service of 200 beds, will be assisted by a federal grant of more than \$10,600. In addition to the maternity beds, there will be nurseries for 24 bassinets, two labour beds, two delivery rooms, and other essential facilities.

Grants amounting to over \$480,800 have been awarded to aid hospital construction in British Columbia. A new General Hospital at Kitimat has received \$362,386. The hospital will have 128 beds, 29 bassinets, and will house a public health centre. Space is included for a future addition of 106 beds. To assist in the construction costs of Lillooet District Hospital, over \$52,200 has been awarded. This new hospital will have 17 beds, eight bassinets, operating and delivery room facilities, x-ray room and emergency and two unfinished two-bed wards. Construction of a centennial health centre at Vernon will be aided by a \$15,500 grant. Williams Lake is also to have a health centre, and \$15,000 has been granted for this purpose. The building of health centres at Trail and Port Alberni will be assisted by grants of \$14,133 and \$13,000 respectively. And \$5,000 will go to help build the Greenwood centennial health centre. Windermere District Hospital, Invermere, will receive a grant of \$4,000 to aid in construction of an eight-bed nurses' residence.

Hospitals in Willowdale, Ajax and Belleville, Ont. have been allotted construction grants totalling about \$80,000. At the North York Branson Hospital, Willowdale, \$38,250 will help the construction of a nurses' residence. The Ajax and Pickering General Hospital will receive \$16,200 to help in an addition to provide 12 more active treatment beds. Belleville's General Hospital is building a one-storey addition to provide more adequate space for its clinical

laboratory—the federal grant will be about \$25,500.

A federal grant of \$111,750 has been awarded to the Charlottetown Hospital, Charlottetown, P.E.I., to assist in the cost of building a residence to accommodate 127 nurses.

Costs of increasing the bed capacity of the Central Butte Union Hospital, Central Butte, Sask., from 18 beds to 28 beds, will be partly defrayed by a federal grant of \$12,500. There will also be an out-patient emergency treatment room, improved diagnostic facilities, and accommodation for public health services.

A federal grant of more than \$230,000 has been made to the St-Vincent-de-Paul General Hospital, Sherbrooke, Que. The money will be applied toward the construction costs of a nurses' school and residence with beds for 175. It will also cover two new active treatment beds for the hospital.

The St. Raymond Hospital, St. Raymond, Que., has been allotted more than \$59,400 toward the construction costs of a new hospital which will have space for 21 beds, 18 bassinets, a community health centre and living accommodation for five nurses.

The sum of \$37,333 goes to help meet the costs of a new addition to the Sackville Memorial Hospital. This hospital, which serves the town of Sackville, the villages of Port Elgin, and Dorchester, as well as the parishes of Dorchester, Sackville, Westmorland and Botsford, N.B., is to add 28 beds and 12 bassinets.

The Kerrobert Union Hospital, Sask., will receive \$73,973 towards the construction costs of a new hospital with 33 beds, 11 bassinets, and out-patient service. Luseland Health Centre, operated by the Kerrobert Union Hospital District, will be given a grant of \$4,366 towards construction costs.

A new project that will receive \$22,986 is the Evangeline Home and Maternity Hospital in Saint John, N.B. To be operated by the

Salvation Army, the hospital will provide 15 beds, 14 bassinets, teaching facilities for nurses and other related accommodation. Completion is scheduled for March 1959.

A grant of \$34,960 will go to help finance a new project in Hudson Bay, Sask.—the Hudson Bay Union Hospital. It will have 14 beds, six bassinets, laboratory, operating room, case room, x-ray and out-patient treatment rooms and related facilities to serve a population of about 2,800.

Carlyle Health Centre, Carlyle, Sask., which was begun early in 1958, and is to be completed this fall, will receive \$3,000 towards the cost of its single storey building.

Diagnostic and Research

Toronto Western Hospital has been allotted a federal grant of \$42,000 towards the purchase of scientific equipment required for a diagnostic and investigative cardiovascular unit which will provide improved diagnostic facilities and more effective medical and surgical treatment of cardio-vascular disease.

University Hospital, Saskatoon, Sask. has received a grant of \$2,700 to help provide a children's preventive ophthalmology and consultation service. The funds will go toward the salary of an orthoptic technician who will work in the hospital out-patient service.

A variety of new health services in Quebec—a school for nurses' aides, a mental health clinic, and a research program—have been aided by a grant of over \$29,000. More than \$11,200 will go to the Hôtel-Dieu du Christ-Roi, Saint-Joseph d'Alma, to help meet the cost of technical equipment needed to establish a school for nurses' aides. Hôpital St-Vincent-de-Paul of Sherbrooke will receive \$8,300 for its mental health clinic. The rest of the money—\$9,600—goes to the Institute of Microbiology and Hygiene, Montreal, for a research program under which will be studied the reactions which may occur when bacterial vaccines and viral vaccines are used in combination.

Extensive research into cholesterol metabolism to be carried on at Queen's University, Kingston, Ont., will be pushed ahead by a federal grant of \$14,600. Through

(concluded on page 160)

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Renovation Grants

H. G. Hughes, F.R.A.I.C.
Ottawa, Ont.

SINCE 1948 aid for hospital construction has been given by the federal government through grants which match assistance from the provincial governments. This assistance, as we all know, is on a per bed basis. Grants were also made available for diagnostic, preventive and treatment services.

In 1951 grants for nurses' beds came into existence, and three years later assistance was granted for helping finance nurse training areas.

Major changes in the hospital construction grant occurred this year when the expanded terms of the grant were announced by the federal government. These increases were considerably in excess of the increase in the cost of construction in the past ten years. All types of beds were brought up to a grant of \$2,000 per bed. Grants for nurses' beds were increased from \$500 to \$750, and grants for interns' accommodation were incorporated on the same basis.

An important change was the fact that the grants were to be determined on the basis of adequate accommodation not necessarily net gain in beds due to an alteration or addition as had been the rule in the past. For example, if a wing of 50 beds were added to a hospital and because a 4-bed ward had to be lost in making the connection with the new wing to the existing building, the grant in the past would have been determined by deducting four beds from the new beds, so that the grant would be \$46,000 rather than \$50,000. This is not necessarily the case with the new order-in-council under which a grant for the new 50 beds could be given.

Perhaps the most important change in the order-in-council is that there are now grants available for hospitals that require major renovations in order to bring them up to the minimum standard required for good patient

Mr. Hughes is chief of the Hospital Design Division, Department of National Health and Welfare, Ottawa. From a paper given at the Nova Scotian Institute in April, 1958.

care. Renovations must occur within the four walls of an existing building, and nothing that remotely resembles a maintenance project will be considered in this regard. Neither will this portion of the grant be used for minor changes.

Each project will have to be carefully considered on its own merits, taking into account such things as the age of the building wherein the renovation is proposed, its fire-resistant quality, and whether or not it is an economical and a sound proposal to try to renovate some old building that has served its purpose and perhaps should be abandoned.

It is suggested that a priority

of need for renovations should be determined by provincial authorities in order to insure that any particular renovation project is in the best interests of the over-all provincial hospital plan. Hospitals will be asked to give the reasons why such a project for their hospital is considered to be a major renovation. The onus of proof is placed on the hospital. The hospital will be asked to describe the deficiencies of the existing facilities, services and structure, and what improvement they anticipate from renovation.

If the provincial health authorities determine that the renovation project is eligible for assistance, it will then be the responsibility of federal authorities to check the proposal. This means, in many instances, a visit to the hospital, and if all is satisfactory a grant will be determined on a third of the cost of the renovation. Such a grant applies only to areas eligible for grants and beds affected by the renovation.

Funds for Canadian Research

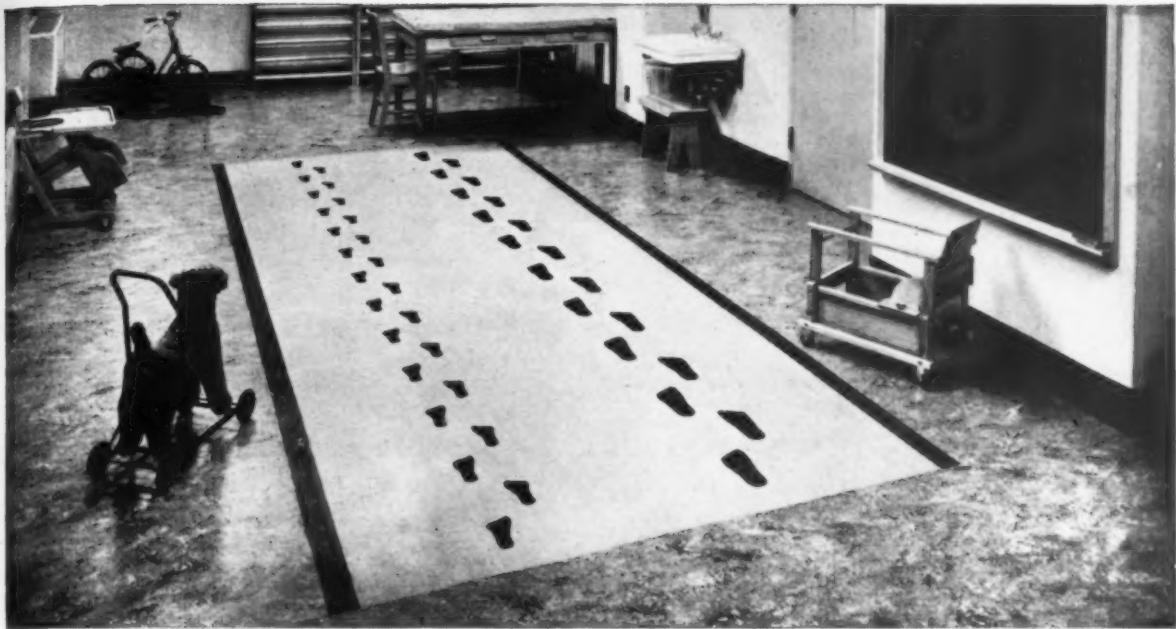
The Life Insurance Medical Research Fund, organized in 1946 to give resources to the fight against heart disease, has this year allocated more than a million dollars to research institutions in the United States and Canada. Among those receiving these awards are the Royal Victoria Hospital, Montreal, Que., for research by Dr. D. V. Bates on the measurement of cardiac output during heavy exercise by indirect Fick method, which will receive \$14,630. University of British Columbia, faculty of medicine, Vancouver, B.C., receives \$15,400 for research by Dr. Edwin E. Daniel on smooth muscle electrolyte metabolism in hypertension. The University of British Columbia's faculty of medicine also receives \$12,100 for research by Dr. George I. Drummond on the mechanism of drug-induced changes in myocardial contractility. The University of Manitoba, faculty of medicine, Winnipeg, Man., has been awarded \$29,700 for research by Dr. Mark Nickerson on mechanisms of action and applications of adrenergic drugs. The faculty of medicine at the University of Western Ontario, London, Ont., will get \$14,300 for research by Dr. Robert C. Buck on reactions of arterial endothelium.

Individual grants are also given for research at institutions. This year Joseph A. Hinke, M.D. of Vancouver, B.C., will go to University College, London, Eng.; Serge Renaud, V.M.D. of Montreal, Que., will study at the University of Montreal, Institute of Experimental Medicine and Surgery; Douglas R. Waud, M.D., London, Ont., will go to Harvard Medical School, and Tom Webb, Ph. D. of Toronto, Ont., to the Institut Pasteur of Paris, France.

Geriatric Centre in Saskatoon

It has been reported that the Society for the Chronically Ill will offer its services to the Saskatchewan government in planning a proposed geriatric centre in Saskatoon. Dr. T. E. Hunt, head of the department of rehabilitation medicine in the College of Medicine, University of Saskatchewan, said: "The society is not interested in the development of a fine building . . . the society is interested in seeing that these disabled people receive the care and rehabilitation that will allow them to return to their homes improved."—*Rehabilitation in Canada*.

I am a man, and nothing that concerns a man do I deem a matter of indifference to me.—Terence.



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Twenty Years Ago

From The Canadian Hospital,
October 1938

Dr. J. A. Hannah, chief medical officer of the Associated Medical Services, Inc., has announced that membership now stands at 25,000. This organization was launched in June, 1937 with the support of the Ontario Medical Association and the local medical societies in the

centres where the plan has been organized. Some 720 physicians in Toronto alone have signified their willingness to work with the new association.

This experiment in the province of a broad type of health coverage, supported on a voluntary contributory basis by premiums has attracted wide interest throughout Canada and the United States. Many investigators

have expressed the opinion that a co-operative voluntary plan of this type will prove to be the best solution for the economic problem of sickness as it concerns the individual of moderate means.

There has been some uncertainty concerning the effect of the 1938 amendments to the sales tax legislation upon the arrangement for the exemption from sales tax on building materials used in hospital construction. Hitherto, it has been necessary for hospitals to make arrangements to purchase building materials themselves, in order to qualify for the sales tax exemption. It has not been clear to a number of hospital architects and building committees whether, under the new arrangements, the public hospitals would be able to obtain full exemption, irrespective of how the contract is let, or whether they would obtain exemption only on the materials mentioned in the rulings should they permit the contractor to purchase the materials.

Unannounced, a patient evidently in need of medical assistance, presented herself at the entrance of the emergency wing of the Toronto General Hospital. When examined by one of the interns, she was unable to give her name and address, but was so obviously in need of attention that the intern decided to admit her at once. Accordingly, she was admitted to a box cubicle in a warm corner of the hospital greenhouse, from whence the latest bulletins would indicate that both mother and kittens are doing as well as could be expected.

With a view to protecting the health of the radiological technician, the Canadian Association of Radiologists at its meeting this summer passed a resolution: "All full-time x-ray technicians approved by this association or its local division shall be entitled to one month's holiday with pay each year, and that the Canadian Hospital Council be apprised of this motion".

This recommendation is in keeping with the last report of the International Committee on Safety in Radiology, since anaemias of an aplastic type are prone to arise if the radiologist and technicians devote themselves too assiduously to their work. Ample recreation in the open air has been frequently recommended to prevent this possibility.

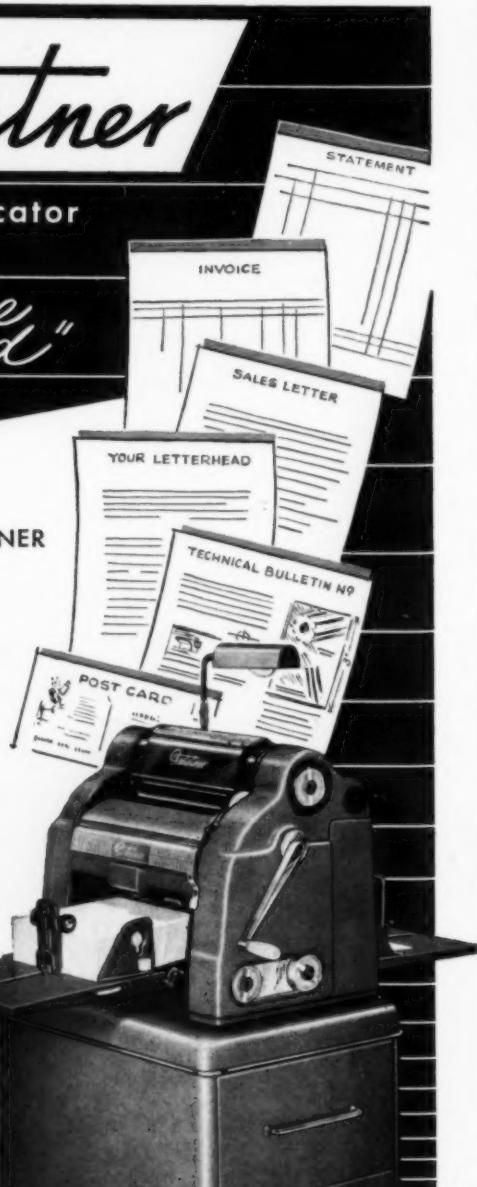
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◀ Provincial Notes ▶

British Columbia

It has taken two years and nearly \$1400, but the Kinsmen Club of Kamloops has achieved its goal—the complete furnishing of a two-bed ward on the surgical floor of the Royal Inland Hospital. This "Centenary Room" was planned by the club in 1956; various delays slowed its completion. But now the attractively furnished, modern ward is ready for use.

Alberta

The new, 20-bed Drayton Valley Municipal Hospital, costing \$300,000, has been officially opened. The hospital, which has eight semi-private and four private wards, as well as complete x-ray, operating room, laboratory and delivery room facilities, was made necessary when Drayton Valley changed suddenly from a sleepy hamlet to a rapidly-growing town. Architects McKernan and Bouey of Edmonton planned the one-storey structure.

An expansion of facilities is planned for the 402-bed Misericordia Hospital, Edmonton. This is part of a program which will extend over several years. First, there will be improvements to the x-ray section and the laboratory department.

This summer saw the opening of the new \$350,000 Fort MacLeod and District Hospital in Fort MacLeod. This well-equipped hospital has 32 beds and will serve a population of more than 5,000 in the district.

Saskatchewan

Permission to proceed with construction of additions and alterations to the Leoville Union Hospital, Leoville, has been received from the provincial government health department. The architect is Frank W. Moore, Prince Albert.

The new \$278,000 laboratory extension now being built at the Regina General Hospital, Regina, is

expected to be ready for use next month. A large part of the first floor will be a chemistry department, and there is to be a conference room and a dual entrance for supplies.

The contract has been awarded for construction of the new Whitewood-Moosomin Union Hospital, Whitewood, which is to cost approximately \$100,000.

Ontario

A new \$485,000 wing will increase accommodation at Winchester and District Memorial Hospital, Winchester, by about 45 beds. It will also improve and enlarge the hospital's facilities. Balharrue, Helmer and Morin of Ottawa, who designed the present hospital, will be responsible for the new addition.

The Leamington District Memorial Hospital, Leamington, Ont., is ready to proceed with plans for its large expansion program. Architects Pennington and Carter of Windsor will prepare detailed working plans for the three-wing addition—construction is expected to begin this month. There will also be renovations to the existing hospital; consideration is being given to the idea of installing two hot water units, one for the laundry and the other for the rest of the building.

London's Victoria Hospital set this month as the date for the opening of its eighth floor which adds 88 beds to the hospital. This means that the hospital has doubled its size in the past ten years and now has close to 1000 beds.

The Ontario Hospital in Kingston has completed its multi-million dollar addition which contains two new infirmary wings, one for males and one for females, a new kitchen, operating and treatment areas and dining rooms. The addition brings another 500 beds to the hospital—there are now over 1,200 available beds. The L-shaped wings are attached to two rectangular centre buildings, one for administration and one for reception and minor

treatment. The hospital will be equipped for almost every major operation, since officials believe it is better to have the equipment on hand than to risk losing a life in rushing a patient to one of the city's general hospitals.

One day after the opening of the Greater Niagara General Hospital, Niagara Falls, Ont., the hospital board met to discuss a \$300,000 addition to the building—in the form of a 51-bed paediatric wing. Sketches are now being prepared for the proposed new wing.

Construction is moving ahead steadily on the Brantford General Hospital's new \$1,500,000 addition. The new wing is just one of three construction jobs going on in this Brantford hospital. A new solarium is nearing completion, and tenders are about to be called for a fire escape stairway on the Queen Elizabeth building. When all this has been completed, and when the car park has been remodelled, it is expected that the hospital will begin work on a new nurses' residence.

St. Joseph's Hospital, Chatham, will almost double its capacity with a \$1,000,000, five-storey addition which adds 100 beds to the hospital. A new kitchen, cafeteria, and emergency department will be included in the new wing which will be built at the east end of the present structure. Architects are Watt and Tillmann, London, Ont.

Quebec

Montreal's Jewish General Hospital is launching a 16-week training course for surgical aides in a move designed to make the most advantageous use of the abilities and skills of its professional nursing staff. Men and women will be trained to serve in the operating room, emergency room and central supply room, areas where "the principles and practice of surgical asepsis are the foundation of technical care." The program follows the trend toward delegating to trained auxiliaries certain areas of nursing that were formerly prerogatives of the registered nurse.

St. Lambert is to have a new 100-bed private hospital, which will help ease the overcrowding becoming more and more acute in Montreal hospitals.

L'Hôpital Ste-Catherine Labourée of Coaticook now has a residence for student nursing assist-

ants. Valued at \$19,990, the building will provide 20 individual rooms for students.

A \$1,000,000, 100-bed hospital is presently under construction at Loretteville. Plans are by Joseph Marchand, Quebec city.

A new maternity hospital is now under construction in St.-Raymond; with 20 beds the hospital is estimated to cost \$168,000. Architect is G. Chabot of Quebec City.

New Brunswick

A two-wing addition to Sackville Memorial Hospital, Sackville, will soon be constructed. The new wings will be built at each end of the hospital and will increase the capacity of the building to 48 beds. An increase in maternity and nursing space and the out-patient department will also be provided by the additions.

The contract has been awarded for construction of an extension to Fredericton's Victoria Public Hospital. Plans, which are by Govan, Ferguson, Lindsay, Kaminker, Langley and Keenleyside, Toronto, call for a four-storey wing.

Nova Scotia

It is expected that the policy of the Nova Scotia Hospital, Halifax, will change considerably when the new \$2,000,000 admissions building opens. The intention is to administer the building on the open-ward principle, with locks and controls eliminated as much as possible. There will be three admission wards in the new hospital—for mild cases, intermediate, and the more disturbed. All ages will be included in each group. Construction of a nurses' residence and staff quarters on the hospital property is also being contemplated.

Bad Business

Business men, alas, are among the world's worst practitioners of health habits. They may be able administrators, well-informed about company operations, excellent in work systems, and towers of strength in production, but they tend to be careless and thoughtless with regard to their own fitness and neglectful of their responsibility to see that their families learn to enjoy physical effort.—*Monthly Letter, Royal Bank of Canada.*



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La construction hospitalière (suite de la page 42)

être désastreuses. Par contre, un programme d'action réaliste peut permettre de sérieuses économies et assurer le conseil d'administration que chaque dollar donne sa pleine valeur et qu'un gaspillage présent et futur n'est pas à redouter.

Le financement de la construction hospitalière au Canada est devenue une responsabilité tripartite acceptée par les gouvernements fédéral, provincial et l'autorité locale. Dans bien des provinces une grande partie des fonds est prélevée localement, et cela de différentes manières. Dans certaines régions, la philanthropie contribue largement à ces fonds, tandis que dans d'autres sa part est minime. La participation de l'autorité municipale est aussi fort variable d'un endroit à l'autre. Les municipalités ne prélèvent pas toutes suffisamment de taxes pour s'acquitter de leur part à la construction hospitalière. Ceci est particulièrement vrai pour les centres ruraux. Ce sont de telles raisons qui ont motivé, dans certaines provinces, la création de districts pour les hôpitaux.

Le programme de subventions à la construction hospitalière inauguré en 1948 par le gouvernement fédéral et les subventions correspondantes des provinces, ont servi à stimuler la construction. Toutefois, comme ces subventions ne sont qu'une partie du coût total, le conseil d'administration doit être certain que d'autres sources l'aideront à financer le tout.

Il est essentiel que le conseil d'administration ait à jour les informations sur les subventions à construction hospitalière, d'ordre à la fois fédéral et provincial. Une copie des *Règlements de 1958 sur les Subventions à l'Hygiène* a été distribuée aux hôpitaux par notre association.

Cette publication est destinée à compléter la section sur la construction déjà publiée dans *l'Annuaire des Hôpitaux du Canada* de 1957 aux pages 193-202. Nous nous proposons de mettre à jour les renseignements statistiques sur la construction actuelle des hôpitaux dans *l'Annuaire de 1959*.

Dans cette publication, on trouvera des articles sur la préparation d'un programme d'action, sur la question financière, sur l'élaboration des plans, sur la lecture des bleus, sur l'air climatisé, sur l'électricité, sur les murs et plafonds. En plus de ces articles, on peut trouver à la page 130 une bibliographie contenant les articles parus dans la revue depuis cinq ans. Pour les personnes qui préparent actuellement un programme de construction, nous croyons qu'il y a une aide précieuse à tirer de toutes ces informations.

The Ladies are Alert

ACH year the Toronto *Telegram* sponsors a series of fall colour tours. Buses are chartered and for a nominal sum the public is invited to ride forth and view the autumn leaves at their loveliest. The first of these, this year, took place on September 21st; and we are pleased to note that at the village of Uxbridge the ladies' auxiliary to the new hospital served refreshments to the visitors in the town park. This is a good example of how an auxiliary can take advantage of a public function to give a welcome service and turn a fast dollar for their own fine purposes. It is also an opportunity to tell a wide public about their community hospital. Our regular column, "With the Auxiliaries", which is absent this month will be resumed in succeeding issues.—J.F.



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(concluded from page 47)

she was handled in the kindest and friendliest and most satisfactory (to her) way.

In order to impress this fact, I have made a practice for some years of meeting each new group of nurses and affiliates at our hospital and haranguing them on the importance of handling the labouring woman in just that way. I would judge from the results that I had better to have saved my breath to cool my porridge. However, I keep at it despite discouragement because I believe firmly that the nursing of the labouring woman has got to be improved and amended to meet the importance of the act she is carrying out—the act without which there would be no humanity.

If, as seems likely, having a baby is the most important thing a human being can do, then I believe we should provide within maternity hospitals and sections, the facilities and nursing care it deserves, and to get away from

the antiquated architectural and nursing ideas of the past. We have made a start in this direction in Halifax, but we are not entirely happy about the results. You can build a proper hospital, you can provide the very best ideas and facilities, you can lead the hospital personnel up to the trough of the future—but damned if you can make 'em drink from it! However, this article is a plea that we keep trying.

Air Conditioning

(concluded from page 67)

basis than the remainder of the structure because of the very high load.

When a complete hospital is to be air conditioned, we have found that a figure of somewhat under two dollars per square foot will be indicated as the added cost for full year-round air conditioning as compared to a conventional heating system.

Where large areas of a hospital are conditioned, it is customary to

employ a central refrigeration plant, usually located near the heating plant. Only a small amount of water is needed to cool this machine as a cooling tower is provided. This tower cools the water which is then piped back. Operating staff requirements vary from province to province, but in some areas the use of centrifugal compressors rather than reciprocating is desired in order to lower operating engineer requirements.

Satan and Satin

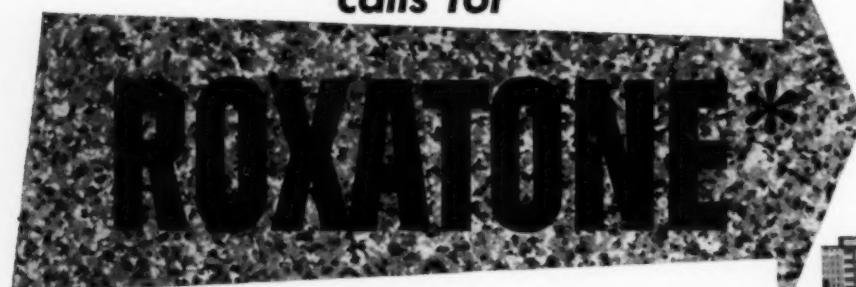
"I don't understand it," growled Banks at his wife. "You promised me you wouldn't buy another dress this season."

"I'm sorry, dear," replied his wife, "but the devil tempted me."

"The devil," scoffed her husband. "Why didn't you say 'Get thee behind me, Satan'?"

"I did," replied Mrs. Banks, "and then he whispered over my shoulder, 'My dear, it just fits beautifully in the back.'"—*English Digest*.

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Planning for Economy
(concluded from page 68)

basis for producing area diagrams and preliminary drawings.

Preliminary Drawings

In their final form, the preliminary drawings represent to the initiated the entire key to the future hospital, its function, its form, its organization and management. They cannot be simply thrown together in a few hours or days. They should be the result of careful thought, innumerable consultations, considerable research, plus unlimited patience and understanding by all members of the planning team. They must, in other words, be tailored to the individual needs of that area; they must be designed for the patient, to produce a unit to be operated for the patient in a manner both efficient and economical.

Final preliminary drawings require approval at both provincial and federal government level if grants are to be available. Very close estimates of costs can be prepared for new construction, where-

as, those for extensions and renovations are much less exact. If the staff of various hospital departments have worked closely with the planning team, relatively few changes need be made in the working drawings before they are sent out for tender. Work loads of individual departments will have been studied, the specialized equipment (both movable and fixed) will have been pretty well agreed upon, and even the number and duties of department staffs will have been settled. Other important decisions which will have been made will concern whether or not certain labour saving devices are to be included in the design even though they add to the original cost. I refer to pneumatic tube systems, piped oxygen and other gases, intercoms, and an adequate number of elevators and dumb waiters, et cetera.

The finished project, designed under orderly and comprehensive planning methods, will offer safety to the patients and pleasure to the staff; will be a joy to the administrator; and will inspire the confidence of the public.

Homes for the Aged Receive Help

Provincial grants of \$348,000 for new construction and additions to accommodation are going to three of Ontario's municipal homes for the aged. Two of these homes—Wellington County Home, Fergus, and the Lincoln and St. Catharines Home, St. Catharines—are receiving final payments. A total of just under \$135,000 (50 per cent of construction costs) was reached when Wellington County Home received a grant of \$38,000; the money is going toward a 46-bed addition. The Lincoln and St. Catharines Home has received a grant totalling more than \$618,000, now that the final payment of \$85,000 has been made.

Fort William and District Home receives at this time almost \$225,000 to assist in the construction of its new 169-bed home. To date, this home has been granted \$278,342 by the province.—Ontario Government Services.

Education is what is left after you have forgotten everything you have been taught.

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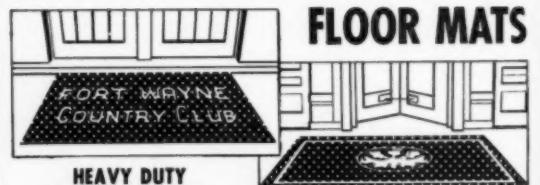
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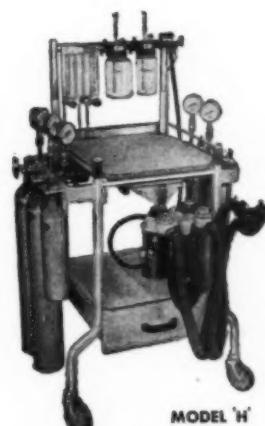
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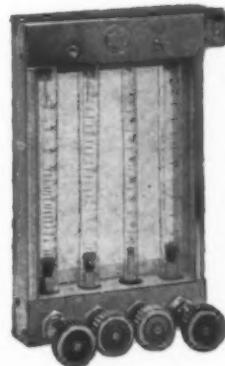
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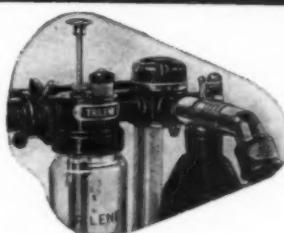
MODEL 'H'



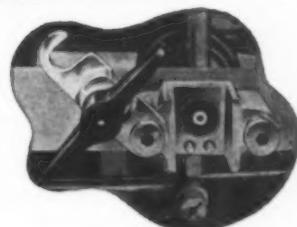
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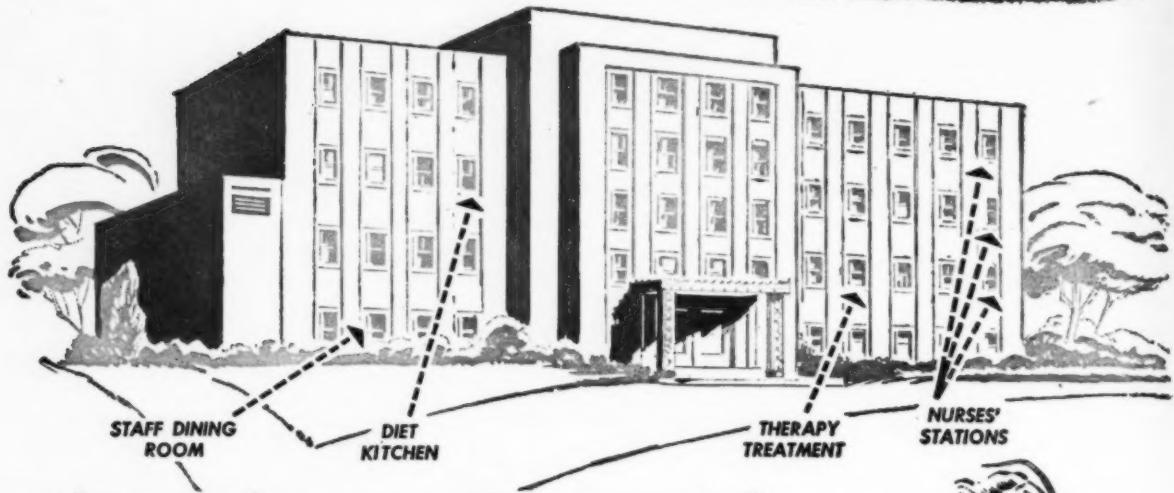
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Dietary Problems

(concluded from page 100)

summarization of these menus has not proved to be a major problem in any institution. One additional cook may or may not be necessary, depending on the size of the institution.

The improved public relations resulting from increased patient satisfaction compensates for the extra effort, and possible extra cost involved.

Patient Food Service

Experience has indicated that complete, centralized food service for patients is preferable in the smaller institutions where supervision is limited. This is especially true if a system of selective menus is followed.

One of the most satisfactory models of conveyors for this type of service is the kind with a refrigerated section for the tray complete with cutlery and cold

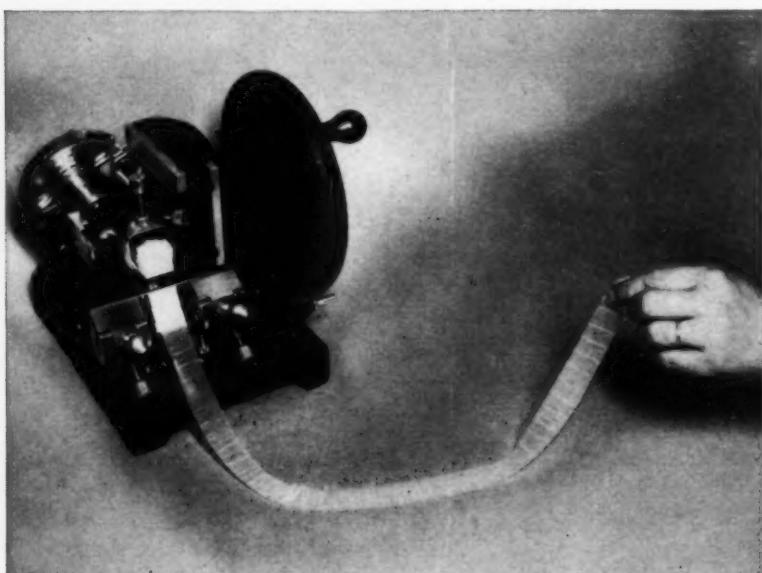
items; a hot section for the covered plate, soup, and hot desserts; and insulated thermal jugs for beverages. The individual items are served in the central serving area (*i.e.*, the kitchen) and placed either in the refrigerated or heated areas. The tray is assembled either at the patient's door or in the floor kitchenette. It might be well to mention a 1955 survey on bread service done in the United States¹. This study indicated that all hospitals surveyed wrapped the individual portions of bread for tray service, hence decreasing the inevitable drying.

The method of service as outlined here, insures optimum temperature and palatability of the food, as well as providing a constant control over portion sizes and therefore decreasing waste in the smaller hospital.

Conclusion

The problems relating to control of supplies, menus, and patient food service are only three of the many encountered in the dietary service of any hospital. The suggestions outlined may assist small hospitals in other provinces to improve these aspects of their dietary departments.

1. Prepared by Consumer Service Department, American Institute of Baking, 400 East Ontario St., Chicago, Ill., U.S.A. Available from Bakery Foods Foundation of Canada, 60 St. Clair Ave. W., Toronto, Ont.



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Men at Work (concluded from page 98)

light. Day rooms for ambulatory patients open on balconies and create a relaxed, homey atmosphere.

The Llewellyn Hospital was opened in August and will, it is hoped, be in full operation by November. This new hospital will do more than provide Kitwe and the surrounding country with new hospital beds and the services of consultants and specialists, and with training facilities for newly qualified doctors and nurses. By attracting many out-patients and accompanying visitors from the area to the most modern hospital in the copper belt, the new hospital will have considerable impact on the social and economic development of Kitwe itself. By Stephan E. Schattmann—Courtesy "Feature".

Wise men learn more from fools than fools from wise men.—Marcus Porcius Cato



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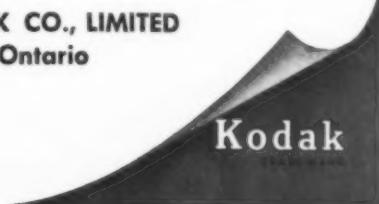
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Through its 19 pages, advice for proper conduct toward patients and visitors is included, and details of employment (probationary period, salary increases, vacation allowance, sick leave, pay cheque and deductions, et cetera) are explained. Employees are told how they should act and what they should look for in their new positions. Thus, the manual gives every new employee a pleasant welcome to the hospital, and provides him with much useful information besides. — *Hospital Highlights*.

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effective new technique

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The quantitative removal of bacteria by Kathabar Systems has been established in over 4 years of tests by the Research Foundation of the University of Toledo, using instrumentation which is 99% effective in air sampling.

These tests show that Kathabar equipment removes 97% of all airborne micro-organisms in the contacted air stream. Applicability of this equipment has been proved in over 10 years of use by food and pharmaceutical plants and in comfort installations.

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The continuous removal of 97% of the organisms entering a Kathabar unit has been confirmed by actual hospital readings. This means that a Kathabar System can guarantee that

not more than 5 organisms per 10 cubic feet can enter an operating room. Test readings, as close as 6 inches to open wounds, have shown an average pick-up of less than 5 organisms per 10 cubic feet.

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Nurse-Surgeon Joint Meetings

The nurse, her rôle on the health team, and her individual responsibility in keeping up with surgical nursing trends will be spotlighted in two sectional meetings of the American College of Surgeons, one to be held in St. Louis, Missouri, next March, and one to take place in Montreal, Que., from April 6-9, 1959.

A preliminary report of the Montreal meeting, the first in Canada, promises some very interesting sessions—all of them bilingual. Those attending will hear the story of one person's nursing care in the Montreal General Hospital, and will have presented to them some aspects in this person's rehabilitation. Also included among the scheduled topics are "The Preparation of the Nurse for Surgical Nursing", "Rehabilitation of the Person in Industry", and "The Problem and Control of Staphylococcal Infections". There will be tours and demonstrations at several of Montreal's hospitals.

Further information may be obtained from Dr. H. Prather Saunders, associate director, American College of Surgeons, 40 East Erie

St., Chicago, Ill.—Released by the American College of Surgeons.

London Ambulance Service

Some interesting statistics have been issued on the work of the London Ambulance Service for 1957. The service carries about 1,100,000 patients each year over a distance of about 6,000,000 miles. The increase in the volume of work in the last ten years is shown by the statement that for every 100 patients carried by ambulance during 1947, 459 were carried last year. For every 100 miles covered and 100 journeys undertaken in 1947, the service last year covered 277 miles and undertook 291 journeys. The daily average of "999" calls was 267, but the number was usually above average on Fridays. The periods of heaviest demand on the service varied: the busiest periods for street accidents were between 5 p.m. and 7 p.m. and between 11 p.m. and midnight, but most home accidents occurred between 10 a.m. and 7 p.m.

The average time taken to reach the scene of street accidents, to which there were 17,704 calls, was

5.8 minutes. Casualties were admitted to hospitals within an average of 17.3 minutes from the time the calls were received. The greatest number of emergency cases were removed to St. James' Hospital, Balham; this hospital received 4,255 patients.

The work of the general section continued to grow. During 1957 it carried 886,839 patients—83 per cent of them out-patients at hospitals and clinics. About 24,000 patients travelling by train to London from out-county areas were met by ambulances at main line stations, taken to hospitals and clinics and then carried back to their stations.

Twelve per cent of the patients dealt with by the Ambulance Service were carried by the Ambulance Department of the Joint Committee of the Order of St. John of Jerusalem and the British Red Cross Society, and the County of London Hospital Car Service. — *The Hospital*.

Put off until tomorrow what you ought not to do at all.—*Poor Richard, Jr.*, from *The Canadian Nurse*.

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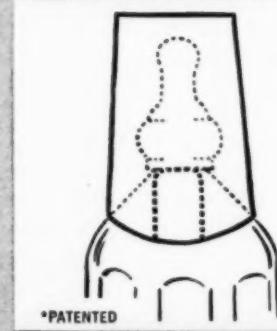


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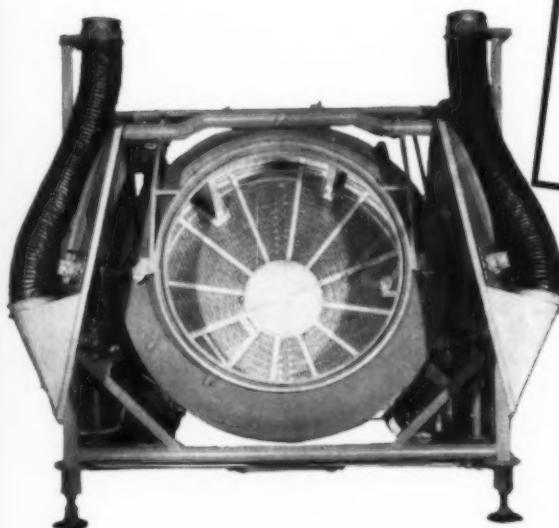


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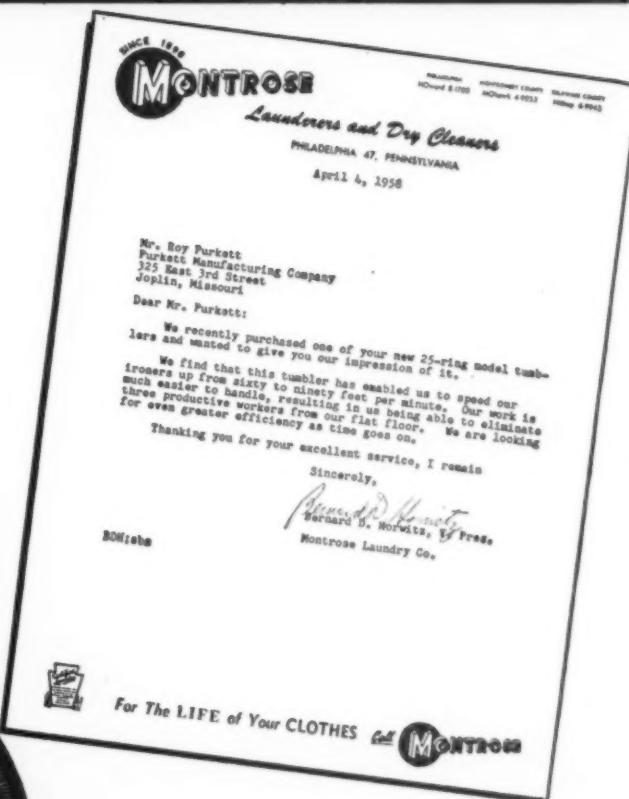
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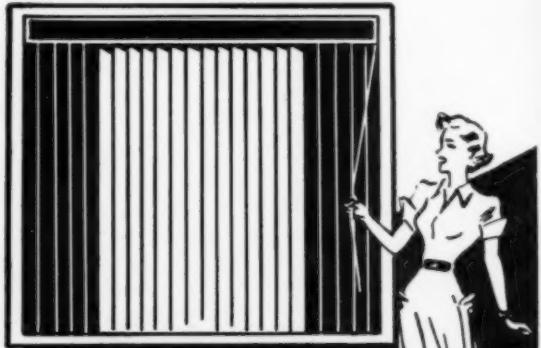
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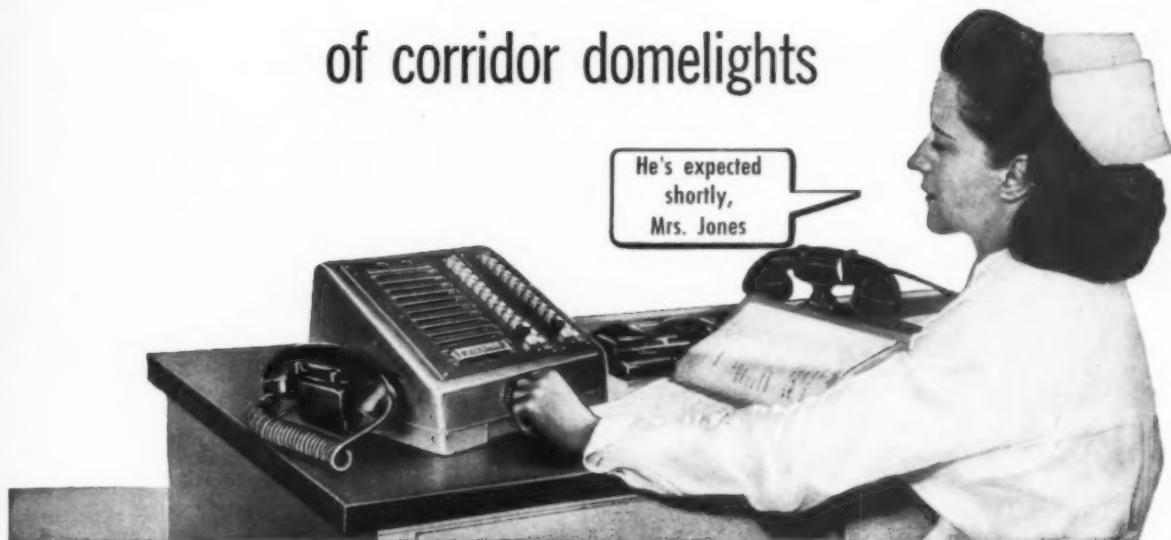


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Communication

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confidence. Ask him for his opinion. Show appreciation. Don't hesitate to give credit. To give credit for work well done will inspire more creativity and this is the key to development. When it is necessary to criticize:

(a) Do it in private; (b) Do it with a smile and in a friendly manner; (c) Give some praise to take off the sting; (d) Make it constructive. Show him how; don't merely find fault. If you don't know how to improve the situation, keep quiet. (e) End up with another bit of praise.

And how important attitudes are! We can communicate so much just by our manner. In the rush for efficiency, accreditation, new wings and the latest equipment—are the Christian qualities of nursing in danger of being lost? Let us not forget the exercise of the spiritual and corporal works of mercy. Can Christ say to us, "I was sick and you visited me; I was thirsty and you gave me to drink; I was sorrowful and you comforted me"?



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Here and There . . .

Medical Services in Israel

The nucleus of the Israel medical services was formed on the eve of World War I. These services have grown steadily under the British Mandate and have mushroomed spectacularly since the establishment of the State of Israel. The medical effort in Israel shows a number of extraordinary, and in some respects, unique features.

It has risen in a notoriously backward region of the world, plagued by disease, ignorance and poverty, and ravaged by malnutrition, parasitic infections and debilitating maladies which affect the major portion of the Middle Eastern population. The medical effort in the region was initiated largely by missionary groups with very little local initiative, the inadequacy of which is still a most

conspicuous feature in the Arab countries, even in those enjoying vast oil revenues. In Israel, on the other hand, local initiative has created in a few decades an oasis of health and well-being in a disease-ridden area.

The doctor-population ratio in Israel, about one physician serving 480 people, is one of the highest in the world. It compares with 710 in the United States, 841 in Italy, 3,197 in Turkey, 3,625 in Egypt, 5,276 in Syria, 6,296 in Jordan, and 164,835 in Abyssinia.

While the age structure of the Israel population is weighted in favour of youth, the opposite is true of the medical profession. About 50 per cent of Israel doctors are over 50 years of age, as compared with 40 per cent in the United States.

Since the establishment of the

State, hospital and clinic services have expanded rapidly and have more than kept pace with the influx of immigrants. In 1949, 63 hospitals functioned in Israel, providing 4,626 beds (5.33 beds per 1,000 population). In 1956, the number of hospitals rose to 102 with 12,254 beds (6.85 beds per 1,000 population).

About 75 per cent of the population of Israel benefit from health insurance. Unlike the voluntary group insurance provided in the United States and the socialized medicine in Great Britain, the health insurance system in Israel is run by voluntary health agencies which obtain grants-in-aid from the government. It is noteworthy that Israel spends more money per capita on medical services than Great Britain. The total medical expenditure in Israel is about one hundred million Israel pounds, of which the government pays approximately one-third. Nationalization of the health services is still a remote prospect because of both financial and organizational considerations.

(continued on page 138)

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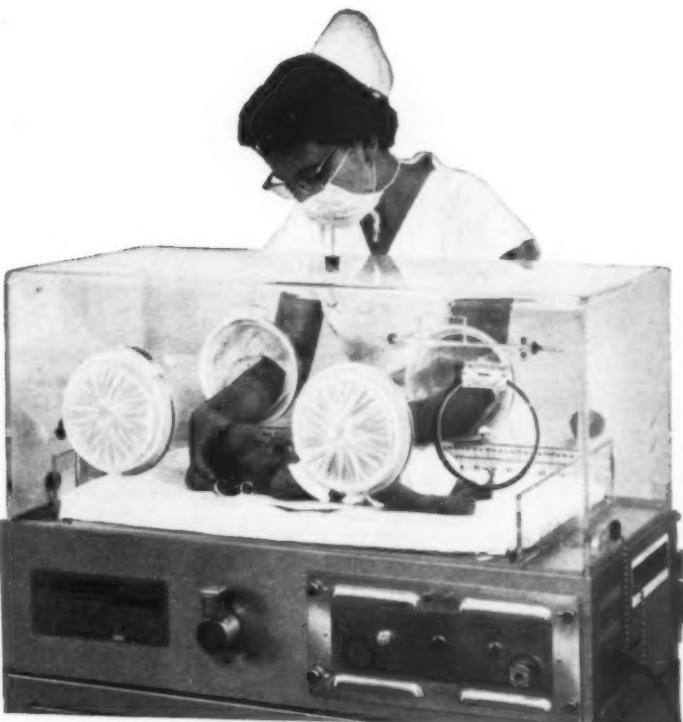
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*Zinsser, H.: *Bacteriology*, ed. 11, New York, D. Appleton-Century Company, Inc. 1957, p. 244.

Here and There

(continued from page 136)

One of the most impressive achievements of the medical effort in Israel, an achievement accomplished within a relatively short period of time, has been the reduction of infant mortality from 51.7 per thousand births in 1949 to 32.3 in 1956. Malaria declined from 2.0 cases per thousand people in 1950 to 0.04 in 1955. Trachoma, bilharziasis (schistosomiasis) and various skin diseases, a menace in a period of mass immigration from backward

lands, have been effectively combatted. The rate of death from tuberculosis has shown a striking decline. In 1955, only Denmark and Holland achieved similar results.

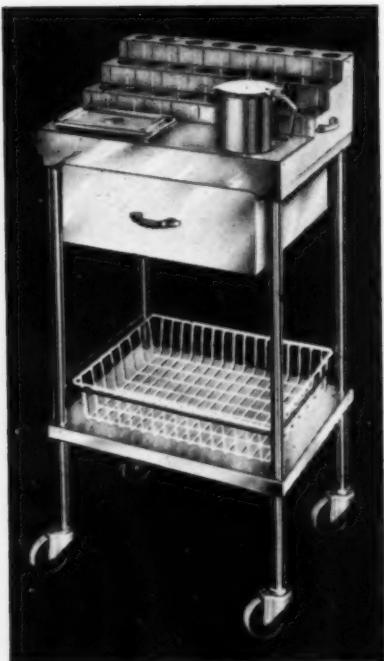
The Israel medical authorities are nevertheless far from being complacent, and much stress is laid upon preventive medicine. The preoccupation with preventive medicine is explained in a statement made some time ago by the director general of the Ministry of Health: "It is customary to judge the state of health in a country by the consideration of certain

statistical data such as life expectancy, infant mortality, mortality and morbidity rates, et cetera. Were we to apply these considerations to Israel, we would conclude that the health of the population is good. However, a closer study would reveal that though mortality statistics are satisfactory, morbidity statistics are far from being satisfactory, especially in what concerns preventable diseases"—*The Hebrew Medical Journal*.

Holland's Floating Hospital

Weekly boat excursions, organized by the Netherlands Red Cross, are much appreciated by chronic and bed-ridden patients from Dutch hospitals. Beds on boats are arranged to give a view of the canals and flower fields. At present about 1,300 patients enjoy these outings each year. The Dutch Red Cross is now building a 70-bed hospital ship to be available for large scale emergencies, not only in Holland, but also in Belgium and German places up to 40 miles or so from the Dutch frontier. If and when disasters occur the *J. Henri Dunant*, as the ship has been named, will be able to carry 100 emergency berths. Alternatively, she may be used for personnel-evacuation, when many more would be accommodated—or as a floating depot ship for medical and other relief supplies.—*Hospital & Health Management*.

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(concluded on page 142)



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Perfect exhaust fan for small dark-rooms, fluoroscopic rooms or offices. Mounts in metal, wood, composition or plywood up to $\frac{1}{2}$ " thick, requires $6\frac{1}{4}$ " diam. wall opening.

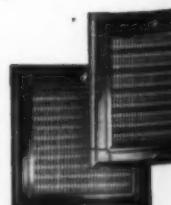


Motorless ventilator provides
free passage for
air circulation **\$2215**



Use this lightproof "breather" ventilator in your film-processing and fluoroscopic rooms. Installs in wood or metal of any thickness . . . requires 12" x 24" wall opening.

Lightproof speaking grille
speeds interroom
communication **\$1290**



Two-piece, black-metal grille lets you talk between dark-rooms and adjoining rooms or halls. Fits 6" square wall opening.

Improve skull technic with Angligner and radiographic manual. Both for \$1735

Specially designed *Angligner* helps you set correct angle for patient's head, film holder and x-ray tube. Complete with valuable 60-page guide to better skull technic.



Film-hanger drip trays stave off messy floors

Pair \$910

Clip these trays onto film hangers to catch drippings during wet-film viewing. Small size fits 8 x 10 and 10 x 12 hangers . . . larger size fits 11 x 14 and 14 x 17 hangers.



Safety step stool has countless uses in x-ray department

\$943



Sure footing is provided by ribbed rubber, no-slip top. Chrome legs with rubber feet . . . non-tipping design . . . top measures 17 $\frac{1}{4}$ " x 12" . . . height of step, 10 $\frac{5}{8}$ ".

CLIP THIS COUPON . . . Or, to obtain these and hundreds of other quality accessory and supply items, call your nearby General Electric x-ray office. You'll find it listed in the Yellow Pages of your phone book.

SEND TO:

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X-RAY CORP., LTD.
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WINNIPEG 2, or VANCOUVER

YOUR NAME.....

ADDRESS.....

CITY.....

CHECK ITEMS REQUESTED:

Film: Ansco DuPont Ilford Kodak Screen No-Screen
(Available in boxes of 25, 75, 100)

5"x7" 6 $\frac{1}{2}$ "x8 $\frac{1}{2}$ " 8"x10" 10"x12" 11"x14" 14x17"

SUPERMIX LIQUIDS DEVELOPER REFRESHER STAIN-LESS SPEED FIXER*

26 oz. makes 1 gal....	\$1.62	\$1.64	\$1.41	\$1.63
12 or more, each.....	1.48	1.50	1.29	1.49
30 oz. makes 3 gal....	4.41			4.09
4 or more, each.....	4.02			3.73
1 gal. makes 5 gal....	5.83	5.88	4.87	5.34
4 or more, each.....	5.31	5.36	4.43	4.87

*Comes in 1 and 5 qt. only, to make 1 and 5 gal. of solution.

Stainless-steel cart offers clean transportation of wet films

\$1100

Rubber-tired, stainless-steel film cart will keep your floors dry . . . carries up to 12 wet films at a time. Drip pan catches run-off. Size — 18 $\frac{1}{8}$ " wide, 33" long, 33 $\frac{1}{2}$ " high.



Flexible film holders...outwear "cardboards" by several times



Tape-bound, tough, plasticized-paper exposure holders give you these special advantages: washable . . . pliable . . . won't break at folds or fray at edges. Available with or without lead backs. (See coupon for sizes and prices.)

Now everyone can afford stainless-steel tanks

G-E "5-15-5" processing tanks offer stainless-steel advantages at lowest cost. 5-gal. developer and fixer compartments, 15-gal. wash. Various models. Send coupon for details.



Caliper (regular)	\$4.00	Drip trays:
Caliper (deluxe)	\$8.85	small, pr. \$9.10
Timer	\$12.70	large, pr. \$9.10
Vent-Axia	\$60.00	1 of each \$9.10
Motorless ventilator	\$22.15	Angligner and technic
Speaking grille	\$12.90	manual \$17.35
Step stool	\$9.43	Send me literature
Wet-film cart	\$110.00	on "5-15-5" tanks.

FLEXIBLE FILM HOLDERS

SIZE	5x7	6 $\frac{1}{2}$ "x8 $\frac{1}{2}$ "	8x10	7x17	10x12	11x14	14x17
Lead back	2.21	\$2.77	\$3.30	\$3.87	\$3.86	\$4.27	\$5.27
No lead back	1.93	2.28	3.00	3.31	3.23	4.27	

*Unless otherwise indicated, prices include duty, if any. Shipping charges, sales and use taxes must be added where applicable. Prices subject to change without notice.

Here and There

(concluded from page 138)

medical schools operating in 85 countries graduate annually about 67,000 new doctors.

There are 14 countries fortunate enough to have one doctor to serve every thousand or fewer people. But there are 22 others where there is only one doctor for 20,000 or more inhabitants. Between these two extremes the rest of the world shows great variations.

As a general rule, there is a shortage in rural areas, while cities have been known to have an overabundance of medical practitioners.—*World Health*.

Public Health Planning in Africa

A community's beliefs and practices concerning illness and death are deeply rooted in its cultural history as well as in its present day way of life. The outstanding problem facing the public health worker in Africa is that of teaching a scientific outlook on the causes and prevention of illness

to people who have no ordered, scientific knowledge about human physiology, the spread of disease or the effects of treatment.

The village is the focus of any public health program in Africa. In the case of a campaign against yaws, the co-operation of the villagers may be relatively easy to obtain, but difficulties arise when progress is necessarily slow, as, in campaigns against such diseases as malaria, tuberculosis and hookworm. Although the planner and public health worker may be tempted to start operations in those villages where the need is greatest, this is not always the best policy. In general, the most suitable centres are villages where signs of progress and the wish to co-operate are already in evidence.

The "community development" approach, which encourages villagers to help themselves, has proved extremely successful in connection with public health campaigns. Community development has wrought a tremendous change in the life of the ordinary villager, and change

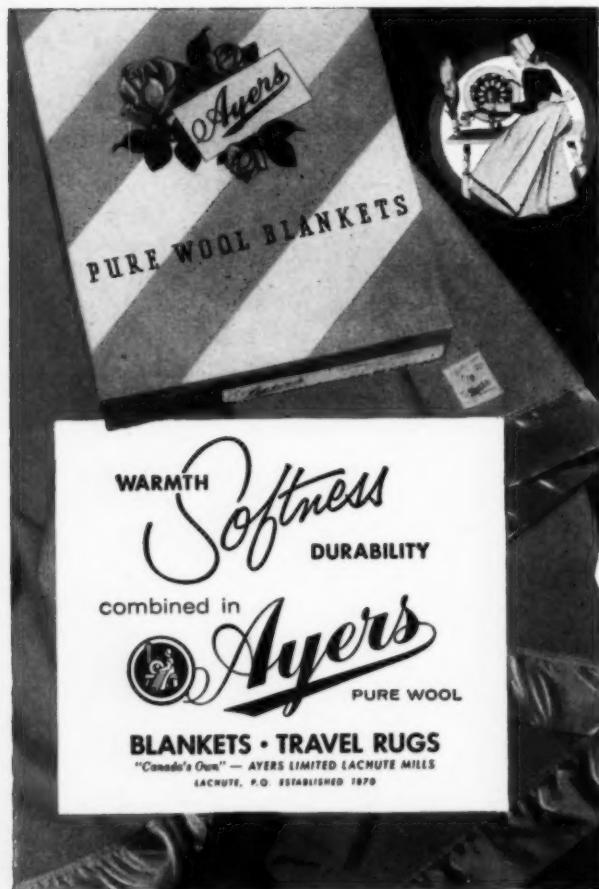
always breeds fresh problems.—*Chronicle of WHO*.

Accident Hospital in Austria

Salzburg has a new accident hospital, centrally situated in the town to avoid delay in treatment of the injured and within easy reach for patients returning for follow-up treatment. The hospital consists of three blocks — an admission block, an administrative block and a six-storey ward block, grouped around a courtyard which serves both as a garden and an area where the injured may exercise outside. A team of four surgeons is constantly on duty—even at night. Blood and bone banks are at their disposal. — *International Hospital Federation News Bulletin*.

The word "esposa" in Spanish means both "wife" and "handcuff". —*Davis' Nursing Survey*.

It is not the oath that makes us believe the man, but the man the oath.—*Aeschylus*.



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There is a one year warranty on A.B.C. equipment. (Elastics excluded)

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3—Odorless Sanitary

The plastic rings and pouches covering the stoma are completely odor resistant.

4—Economical Dependable

Made of strong durable plastic assuring long life.

FLEXIBLE POLYETHYLENE SUPPORTING SHIELD

5—Lightweight Comfortable

Weights only 3 oz. Sufficient ring depth to protect clothing from stoma.

PATENT PENDING

5

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COLOSTOMY KIT IS
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If, after a reasonable trial period, your NIBROC* installation hasn't materially reduced your towel costs, you simply return the cabinets and your investment will be refunded.

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finest quality with the economy you desire. NIBROC* Multifold Towel Cabinets are available in a variety of styles and finishes . . . hold twice as many towels as ordinary cabinets . . . save valuable space because they project only 3½" from the wall.

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At the Elizabeth Kenny Institute . . .

Onan Standby Electric Plant keeps "iron lungs" operating

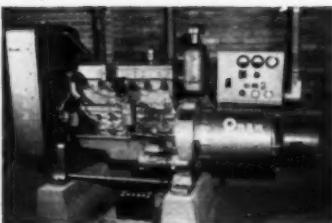
As many as 50 "iron lungs," one elevator, all essential lights, and power requirements for the boiler room are handled by the Onan 50KW electric plant during power outages.

Famed for its polio therapy, the Kenny Institute has patients in respirators at all times. The moment electric power is interrupted these patients will stop breathing . . . which makes immediate automatic starting of the emergency electric plant of vital importance.

An Onan gas-powered electric plant was specified for this extremely critical installation. Onan gas or gasoline-powered plants, coupled with Onan line transfer controls start instantly and take over the power load within seconds.

Sizes for any standby need: 1,000 to 200,000 watts D.C.

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50KW Onan Model 50KA-4RB, installed adjacent to the boiler room at the Kenny Institute. Engine operates on natural gas.

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Course for Bedside Nurses Needed

(The following is from an address by the Hon. Frances P. Bolton, Washington, D.C.)

What this country needs is a good, two-year trained bedside nurse. A trained nurse who, upon completion of her training, would not be a head nurse or a supervisor; would not be a public health nurse or an industrial nurse, or a nurse anaesthetist, or an operating room supervisor, or an educator—and she would not be eligible for a commission in the Armed Forces.

This trained bedside nurse would have an in-between status of her own — something like a warrant officer's rating in the military forces. She would have periodic pay increases at intervals, up to what it takes to keep her on the job if she's worth it. She should have the opportunity to become a senior bedside nurse—a promotion comparable to the chief warrant or petty officer in the military set-up. But if she wanted to become a professional, she would have to return to a university and obtain the necessary education.

The area of nursing below the professional level should be a career in itself. Teaching, supervising, nursing administration require more than a three-year diploma, not only for the sake of patients, but for the sake of the poor devils who have to work on nursing services and in nursing departments under the guidance of the so-called professional nurses.

The two-year level is also an opportunity for the practical nurses to prove they can go on; whether they should be licensed by examination or by sweating out the course for two years would have to be settled by state boards of nurse examiners. The state board requirements for licensing should make these people realize that they not only have legal responsibilities, but also they have legal limitations on their activities. Licensure should help the individual remember that the practice of medicine is a full-fledged doctor's responsibility requiring five to eight years or more of education—whether the doctor is around all the time or not.

The two-year school of nursing would do several other things: It would answer the smaller hospital's need for cheap labour and at the same time meet the needs of many girls who cannot afford the more expensive education that goes with professional nursing. Many girls cannot meet the educational re-

In Anticoagulant Therapy

Why HEPARIN?

Heparin is the body's own anticoagulant. It is a substance which is essential in maintaining the fluidity of circulating blood and is found in all mammalian tissues. Heparin is produced in the body by mast cells which occur in perivascular connective tissue everywhere. It is found in greatest abundance in the liver and lungs. The therapeutic usage of heparin is based upon its property to inhibit the coagulation of the blood. Its timely administration will prevent thrombosis, and, even if administered after thrombosis has set in, it will prevent further propagation of the clot. In all conditions in which thrombosis or the extension of an already existing thrombus is to be avoided, the use of heparin is advisable.

When injected, heparin's *natural* action in the body is to prevent the conversion of prothrombin to thrombin (anti-thrombin action). By neutralizing thromboplastin, it also acts as an anti-prothrombin. Further, it inhibits the agglutination and deposition of platelets, thereby discouraging thrombus formation. Heparin acts directly on blood clotting constituents and does not destroy any component of blood or permanently change the normal constituents of blood. For emergency use it is the *only* anticoagulant which acts almost immediately (within a few minutes on intravenous injection). For safety's sake, its action can be terminated rapidly when necessary. Because of its rapid action, most authorities agree that initial control of thrombo-embolic diseases should be effected by means of heparin administration.

Significant differences exist between heparin and oral anticoagulants:

Latent Period	HEPARIN	ORAL ANTI-COAGULANTS
	Immediate Effect I.V.	24-48 Hours
Effect on Prothrombin Level of Blood	Slight	Markedly Lowered
Effect on Coagulation Time of Blood	Markedly Prolonged	Slightly Prolonged
Regulation of Anti-coagulant Action	Easy	Difficult
Suspension of Action	Rapid	Delayed
Duration of Anti-coagulant Action	12-24 Hours	Several Days
Mode of Administration	Parenteral Only	Oral

Combined heparin-oral anticoagulant therapy overcomes one of the disadvantages of oral therapy by making available the immediate action of heparin on coagulation time during the induction period of the oral drug.

Thus the use of oral anticoagulants in hospitals complements but does not replace the use of heparin. To date, no other substance has proven as effective as heparin in the prevention and treatment of thrombosis and embolism.

Why LIQUAEMIN®?

Purified heparin was first made available to physicians and hospitals in the United States in 1939 as Liquaemin Sodium 'Organon'. Organon's experience in the manufacture of heparin thus antedates that of all other companies. Because and through this long experience in heparin manufacture, not only is Liquaemin Sodium biologically standardized, but before its release is subjected to sixteen extra safety tests, several more than are required by the U.S.P., to assure maximal effectiveness and safety of the preparation. Liquaemin Sodium offers only the purest grade of heparin, and solutions of Liquaemin are water-white in appearance. Thus, just as heparin has remained the only satisfactory compound of its group, Liquaemin has remained the standard heparin preparation since its introduction.

Liquaemin Sodium can be obtained in a variety of dosage forms and strengths, from the original low concentration of 1,000 U.S.P. Units (approx. 10 mg.) per cc for continuous intravenous drip, to the 20,000 U.S.P. Units (approx. 200 mg.) per cc in gelatin, to the 20,000 U.S.P. Units (approx. 200 mg.) per cc aqueous solution for convenient intramuscular depot anticoagulant effect. With its 20,000 U.S.P. Unit per cc aqueous solution of Liquaemin, Organon pioneered the now widely accepted concept that prolonged heparin effect can be achieved by injecting intramuscularly an *aqueous* solution of high concentration-low volume heparin.

These facts — dependability, purity, potency, safety—have established Liquaemin Sodium as the heparin of choice in hospitals throughout the United States.

Liquaemin Sodium is supplied in the following strengths and package sizes:

Aqueous Solutions

- 1,000 U.S.P. Units per cc (approx. 10 mg.)—
10-cc vials
- 5,000 U.S.P. Units per cc (approx. 50 mg.)—
10-cc vials; 1-cc ampuls
- 10,000 U.S.P. Units per cc (approx. 100 mg.)—
4-cc vials; 1-cc ampuls
- 20,000 U.S.P. Units per cc (approx. 200 mg.)—
2-cc vials; 1-cc ampuls; 1-cc ampuls with
disposable syringe

In Gelatin

- 20,000 U.S.P. Units per cc (approx. 200 mg.)—
2-cc vials

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It effectively sanitizes antibiotic resistant strains of Staphylococci.

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Deco-San is applied like regular paints at practically the same cost. It is harmless to humans—odourless, non-toxic.

Ask for Deco-San in:

- ★ Flats, Semi-gloss, Enamels
- ★ Full decorator colour range

Mitchell is Canada's first paint company to manufacture a germ-killing paint for Hospital and allied uses.

USE OR SPECIFY DECO-SAN AS AN AID IN THE FIGHT AGAINST STAPH.

Write or phone for further information on Deco-San . . . the paint with the plus feature.



Manufacturers of decorative, protective and sanitary coatings for home and industry.

quirements, let alone the financial. This level of training would make possible the expansion of the nursing service of the nation without danger to patients.

The time should be long past when we, as patients or taxpayers, can afford to pay lush salaries to haloed Florence Nightingales because they once graduated from schools of nursing and practised nobly at the bedside of patients. Top-level performance in nursing leadership should be the criterion of high-sounding titles and big salaries—government or civilian. Especially when somebody else is carrying the lamp.

* * *

NOTE: The above author's suggested two-year course for bedside nurses has not been overlooked in this country. During the summer we visited briefly Hôpital Notre-Dame de Chartre at Maria on the south shore of Gaspé peninsula in Quebec. In that 110-bed hospital a concentrated two-year course is given for gardes-malades auxiliaries or nursing assistants. The school is in a new wing completed this year where there is also most enticing residence accommodation for the students. The educational qualification for entrance to this course is not so high as in schools for graduate nurses. Thus many girls from surrounding villages in this rather remote area receive here training which fits them to earn a living anywhere. Most important, however, the Sisters in charge assured us that girls who have taken this two-year course are excellent bedside nurses, requiring only supervision by those more highly qualified.—J.F.

Parliamentary

One day a civil servant was driving with a friend in his car when they ran into a dense fog far away in the countryside. Just then, in the limited glow of the headlights, they saw a yokel on a bicycle riding past. The civil servant popped his head out of the side window and cried, "Where am I?" As the cyclist vanished again into the fog he threw back the cryptic words, "In a motor car."

For a time the civil servant was silent and then, turning to his companion, he said: "You know, that was an example of a perfect Parliamentary answer. It had the three essential elements. It was brief, it was true, and it left the questioner with no more information than he had before".—*English Digest*.

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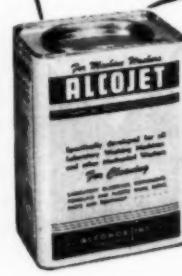
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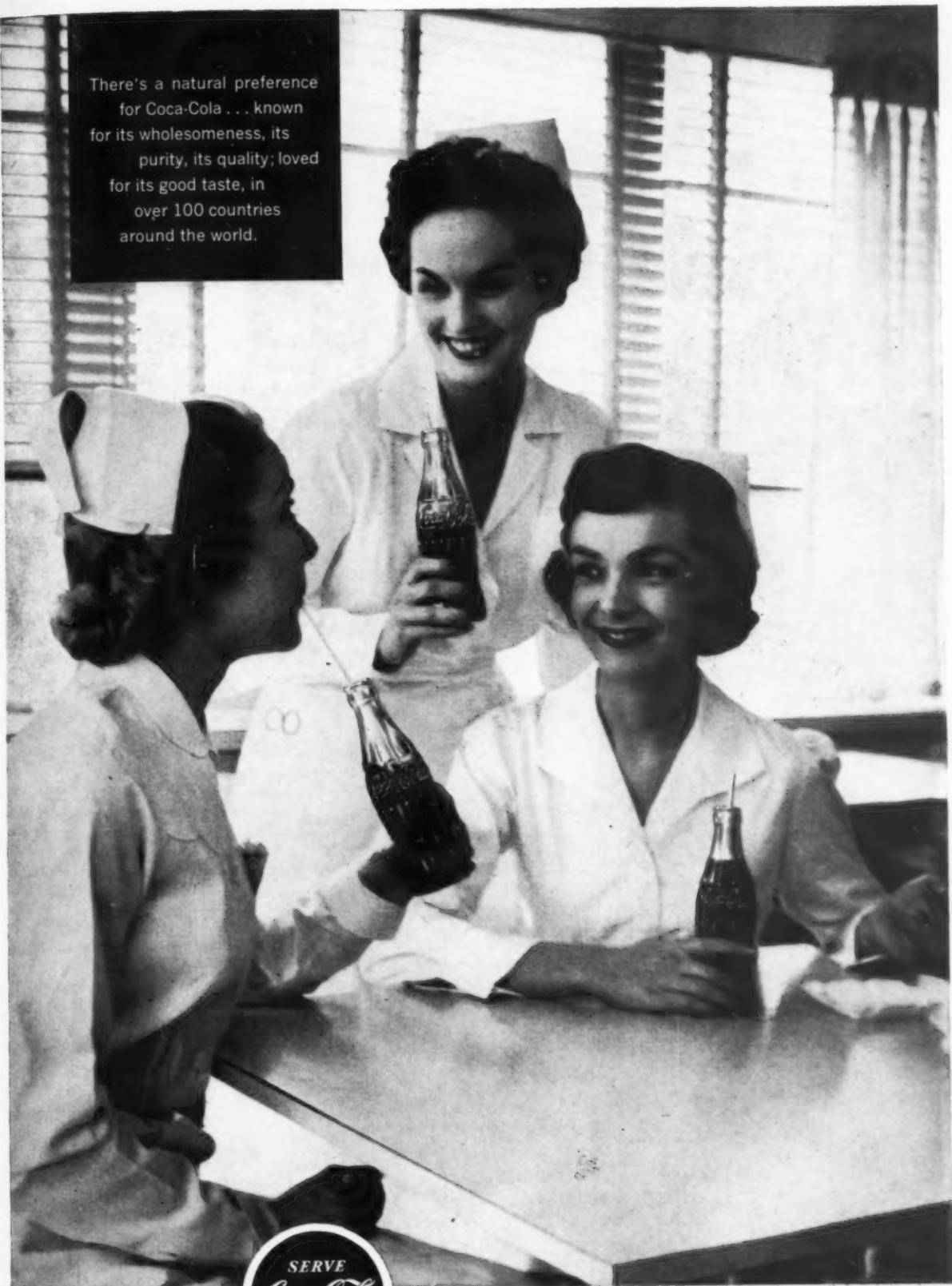
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Campbell River
(concluded from page 52)

into an acid reducing tank; pipette washers and cup sinks are built into the counters; and a fume cabinet is ventilated straight to the outside atmosphere.

The x-ray room has a pass-through to the dark room and a film dryer is placed between the dark room and radiology area. This room is lead-lined and light-proof. Lights are controlled from switches in the operator's panel.

In the physiotherapy exercise room, unbreakable glass is installed. This is divided from the treatment area by a small office.

On the second floor are the maternity department, nurseries, and male and female surgical services. The top floor gives patient care to male and female medical cases, has isolation and psychiatric facilities and a paediatric department.

Case room facilities, and the labour room (which is to be used

as an emergency case room) have the same sterilizing facilities as the surgeries. This area and the nurseries are air conditioned; the remainder of both patient floors are ventilated.

Wards of four beds are the planned maximum. These wards, like all our patient accommodation, have windows on hinges that swing into the room to make housekeeping easy. Individual lockers are built-in for each of the bed occupants. Wash bowls are installed in each room, and fibreglass draperies have been supplied throughout the hospital.

Nursing services will be able to use the bed-to-nurse intercom and oxygen and suction connections that have been piped into the areas where the service is deemed necessary. Night lights are fixed at spaced intervals in the hallways and in the patients' rooms. Telephone jacks are in every private and semi ward, as well as in the hallways for standard accommodation. There is also a mobile pay telephone. Each floor has an up-patient room.

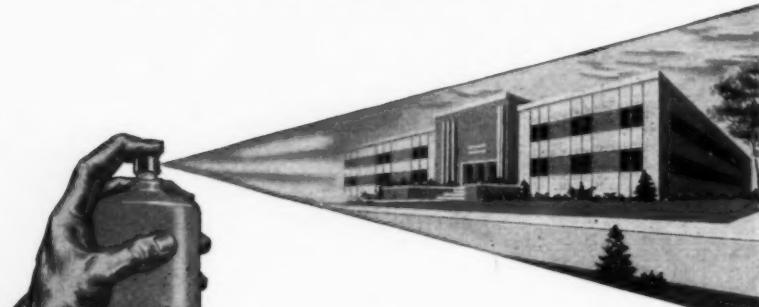
Bed pan sterilizer units are located in each of the clean-up rooms in the central core. The remainder of the core provides space for janitor's stores, linen storage, lavatories, floor kitchens and central nursing stations. Across from these are the stairwell and the elevator.

The flooring above the basement is terrazzo; in the surgeries and obstetrical division it is conductive. Lighting is incandescent in public areas and fluorescent in working areas.

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(concluded from page 80)

than other types. (c) Certain types of acoustic ceilings are readily demountable and this feature makes them highly desirable for those areas of the building containing ducts or pipes at the ceiling that require maintenance or attention. (d) Wood fibre materials which are easily affected by moisture and tend to harbour pests are not desirable as hospital finishing materials.

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Electrical Design
(continued from page 72)

hind the nameplate "on" when in, "off" when out. If there is a message for the doctor, the switchboard operator flips the switch opposite the doctor's name in her register, causing the light behind the doctor's name to flash regularly. The doctor reports to enquiry for his message, and the operator stops the flashing device, leaving the light "on" until turned "off" by the doctor on leaving.

The clock system consists of a master clock which may be either a spring-driven electrically wound pendulum clock or a synchronous clock with spring reserve for power failure. The master clock either by high frequency impulses or by direct wiring causes all secondary clocks to give identical readings of correct time. It is generally considered better practice to use clocks with sweep second hands than without, and to eliminate the use of elapsed time indicators in operating rooms.

There have been a great variety of fire alarm systems developed and used in hospitals. Perhaps common to all is the provision of an interconnection between the internal system in the hospital and the municipal system to provide an alarm at the local fire hall whenever a station is operated in the hospital. The internal system must be satisfactory to the local fire department since the firemen will want to ensure against false alarms due to wiring defects.

The placing of alarm devices within the hospital is dictated by common sense. The alarm must be heard by the engineer, superintendent and switchboard operator. Perhaps this might be all that is necessary in a modern fireproof building, providing the point from which the alarm has originated is indicated on "annunciators". There is considerable debate as to whether the nurses' stations should be alerted in this case. The rapid detection and prevention of spread of fire by a few trained personnel may be preferable to alarming the entire staff. This should be discussed with the local fire marshall.

For all systems, the hospital should be provided with an adequate quantity of spare parts in stock. Also, the hospital maintenance electrician should be thoroughly familiar with the location and operation of all controls. A dated service and inspection log should be kept for the emergency alterna-

tor and its driving engine, main service, doctors' paging, fire alarm, nurse call, radio system, television antenna system, et cetera. Manufacturers' maintenance and operating instructions should be followed, and the staff should be instructed in the use of the equipment. There are many systems such as telautograph, central dictation, disturbed patients' sections and lighting of many of the areas which are not mentioned in this article. All systems have been described in a general way only, in order to acquaint the reader with their existence.

This article is intended to offer a brief outline of present day practices. As continued research and development is undertaken, many of the present systems will be replaced. Each item of equipment and type of system should be investigated in order to guarantee that it is the best available within the limits of the budget.

Electronic Study

The John A. Hartford Foundation has granted \$52,000 to the Hospital Research and Educational Trust to be used to make possible the first study on how electronic data processing equipment may best be adapted for hospital use. This study, to be carried out in Dallas, Texas, at the Baylor University Hospital, will take about four months, and will include research on patients' billing, accounts payable, perpetual inventories, medical records and statistics, payroll and insurance.

The Hospital Research and Educational Trust is a non-profit organization, which, with the aid of grants, conducts projects for the general improvement of knowledge and practice in the hospital field.

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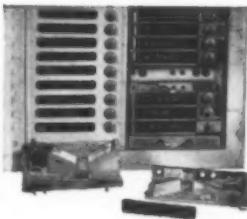
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Medico-Legal Problems
(continued from page 96)

relieve the hospital and its staff of a serious responsibility.

Before making a report to the police of an attempted suicide, however, the medical practitioner concerned should be reasonably satisfied in his own mind that he is correct. If his diagnosis turns out to be in error and the patient sues for defamation of character, the outcome of the case will depend upon whether the doctor acted with reasonable and probable cause. On the other hand, you should note that a failure to report to the police an attempted suicide will undoubtedly be alleged as a ground for a finding of negligence in any action against the hospital and its staff in case the patient does later commit suicide while in hospital.

Summary of How to Avoid Medico-Legal Problems

1. Know the provisions of the statutory law which delegates to your hospital, its board of directors and its staff, authority to carry on the functions of a hospital.

2. Have The Public Hospitals Act and the regulations currently

in force thereunder easily available for the information and guidance of the board, the administrator, the medical staff, the nursing staff and other hospital employees. The regulations under The Hospital Services Commission Act will also be of some importance for occasional reference. These documents are public property and should not be kept as a secret from the staff as a whole by the administrator or anyone else.

3. Draw a comprehensive set of hospital bylaws in accordance with the four simple fundamentals of bylaw construction, with the provisions of the governing legislation under which your hospital was established, with The Public Hospitals Act and the regulations thereunder, and also keeping in mind those requirements of The Corporations Act, 1953, which apply to hospital corporations.

4. Have the hospital bylaws duly passed by the board of directors, confirmed by a general meeting of the members of the hospital corporation and approved by the lieutenant-governor in council.

5. All those connected with the operation of the hospital should,

in their day-to-day work, use as their guide, and comply with the requirements of the Acts, regulations and bylaws. This includes the board of directors itself, the members of the professional staff and other hospital employees.

6. The board should have no hesitation in disciplining, or even discharging from the staff, any member who demonstrates that he or she does not intend, in the performance of his daily duties, to adhere to the provisions laid down in the Acts, regulations and bylaws.

7. Instruct all members of the lay staff, as well as of the professional staff, concerning the necessity for secrecy with regard to hospital records, case histories, and x-ray, bacteriological and pathological findings concerning patients.

8. Make sure that responsible members of the professional staff are, at all times, in charge of aseptic precautions, and in charge of the keeping, handling and preparation of narcotics, drugs and medicines.

9. Do everything possible to guard against operating room explosions, fires and other acci-

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ents. Frequently inspect anaesthetic machines and associated equipment for leaks.

10. Also inspect all other equipment, appliances and instruments on a routine basis, and promptly repair or replace anything that is defective. Have the whole hospital staff alerted to report immediately anything that is not in proper working condition or is not fit to use.

11. Ensure that the care and operation of any potentially dangerous equipment and appliances *e.g.*, heat, diathermy, and radiation producing machines) are entrusted only to those who are fully qualified to take charge of such apparatus.

12. Hospital policies should be established for the guidance of the hospital's staff, particularly interns and nurses, so that they will be able to handle, in a routine manner and with relative confidence, all matters which are known to result frequently in contentious situations and medico-legal problems.

Such subjects as the securing of consent for post mortem examinations, the refusal of a person to submit to necessary treatment himself or to consent to such treatment being given to his child, sexual sterilization, suicides, attempted suicides and the like, should be faced by the board, with the advice of its medical advisory committee, and, above all, with its legal advisor at hand, before any difficult situation presents itself.

Then, in a calm atmosphere, sensible, judicious and practical rules for staff behaviour can be carefully and briefly laid down. Such a procedure will go a long way to prevent unfortunate mistakes in judgment by any member of the staff when acting under the pressure of the circumstances of the moment, perhaps when he is exhausted in the middle of the night, which may be such as to tend to inhibit impartial and circumspect consideration of the facts and logical thought processes concerning the proper course to adopt.

13. Every hospital should have its own lawyer and he should be consulted whenever there is the slightest doubt as to the legal implications of any pronouncement or action of the board, administrator or any other member of the hospital team. If you try to anticipate and prevent medico-legal problems you will avoid the unpleasant

(concluded on page 160)



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The Tempo of Change (concluded from page 44)

creased unless a specific cure is developed. However, apart from diagnostic procedures and surgical intervention, more of the specialized cancer treatment may be undertaken in strategically located centres.

The out-patient department in the city hospital may also be subject to considerable alteration in scope of function in the reasonably near future. Already the provision of medical welfare plans for the indigent and for various welfare aided groups have had the effect of transferring a number of these former patrons to private doctors' offices, and it is reasonable to assume that the provision of hospital insurance and more diagnostic centres will reduce the demand still further for the services of the traditional out-patient department.

With the shorter hospital stay, medical teaching is shifted to a considerable extent to the out-door clinic. This, naturally, will affect the lay-out, with larger examination rooms, conference rooms, students' rooms and other requirements.

The development of television has opened up a new possibility in the teaching of surgical technique, never satisfactory for groups herded into observation galleries or trying to peer over shoulders from the floor. While the equipment is still expensive, it is not much more so than the cost of a gallery and is much more effective.

The greater interest of the general hospital in the mental health of patients is shown by the increasing number of psychiatric services which have been developed. These wings require special planning, with a high proportion of space for up-patients. In addition to the usual psychiatric clinic for outpatients, a number of hospitals have set up a "day-hospital" which provides for the over-seeing of the patient from 9 a.m. until 4 p.m. Some are now having evening groups as well from five o'clock on.

The increased use of hospitals for diagnostic procedures, the greater incidence of emergency work, and the likely increase in the number of medical offices in hospitals will tend to make an accessible location quite desirable. With the shorter average stay of today, a location in the "great open spaces" of the outskirts is not so strongly advocated as a generation ago.

However, in so many of our

rapidly growing communities, what seems to be far out in the country today often becomes practically downtown by tomorrow. We are building permanent fire-resistant structures, not for a decade, but for 60 or 70 years, and probably longer. In order to acquire sufficient acreage for future expansion and for parking, it may be wise to choose a site in the general direction of a city's probable expansion.

Effects on Personnel Shortage

Of much concern in planning are the varied effects of the shortage of nursing and other personnel, skilled and unskilled. Some of these effects are evident now; others are certain to develop.

Increased automation will undoubtedly occur. The use of labour-saving equipment is increasing; much of this should be planned for in building, for alterations later are expensive. For instance, the new compact automatic x-ray film developers and driers only take so many square feet; valuable space thus saved can be used for other purposes. The newer dishwashing equipment with its marked advantages should have space planned for it. The food service selected will affect the size and lay-out of both kitchens and floor serveries. Horizontal and vertical conveyors are becoming very common. So far we have not heard of patients or staff being put upon horizontal or basket conveyors, but with the new moving platforms for subways, that may not be too fantastic.

With the greater and more concentrated use of lower floors for the diagnostic services, physical medicine, out-patients, administrative functions, cafeteria, lounges, et cetera, there is a tremendous concentration of activity and of

vertical movement between two or perhaps three floors. A costly time loss, not always realized, is that of waiting for elevators. Much of this could be prevented by the use of escalators between these lower floors. True, escalators do take more square-footage, a fact which has deterred a number of hospitals from installing them. We believe, however, that they will be used more in the future as time-loss becomes more costly. An up-escalator only, as in the subways, would not be very costly and should prove quite helpful.

Early ambulation and earlier discharge have already had a noticeable effect on hospital planning. Also, the shortage of nursing and related personnel will probably necessitate more self-help. This type of planning has been most apparent in certain hospitals on the west coast of the U.S.A. where running hot and cold water are right beside the bed and the patient has push button controls for the bed-curtains.

Intensive Care Unit

Finally, a development which will not only add to the patients' chances of recovery but should conserve nursing staff is the intensive care unit where post-operative and seriously ill medical patients can be kept until the acute stage is over. Here the best nursing staff and all necessary equipment can be concentrated. The saving in operational costs comes from being able to reduce the nursing staff elsewhere. An especially designed ward is desirable.

There are a number of practical problems associated with this procedure, but they are not major ones. It is most effective in hospitals of over 150 beds in size.

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Book Reviews

(continued from page 104)

ends with a section entitled "Aids to Enrich an Understanding of this Period", suggesting means by which the student can become familiar with the time under discussion.

Pictures of outstanding figures in the field dot the pages of the book, while their contributions to nursing are outlined carefully, though briefly, in the text.

The book ends with a review of the last ten years. Here the advances of our time are pointed out, creating a sharp contrast to the earlier descriptions of conditions among primitive people. The reader has been shown the development of nursing from the beginning of man to the present day. He is left wondering what the future will bring.

ANATOMY AND PHYSIOLOGY LABORATORY MANUAL, second edition, by Arthur W. Glass, M.A., Ph.D., and Charles L. Hamrum, M.S., Ph.D. Published by the W. B. Saunders Company, Philadelphia, Pa. 1958 Diags. pp. 95.

This serviceable manual presents the study of the structural relationships of the muscles, blood vessels and nerves in a brief, instructional form. It includes exercise for laboratory work on foetal pigs, and on the comparisons between the pig and similar structures of the human being. Ample space is provided for student drawings. The cell, tissues, skeleton, blood and experiments in general, and muscle physiology are all explained in such a way to prompt the student to work along with the book.

FUNDAMENTALS OF CHEMISTRY by L. Jean Bogert, Ph.D. Eighth edition. Published by W. B. Saunders Co., Philadelphia and London. 1958. Pp. 615. Illus.

The recent trend toward increased scientific education has been kept in mind by the author in this eighth edition of his book. He has, therefore, altered his text somewhat to permit the introduction of new and timely material. He has also granted considerable space to biochemistry—so important in the fields of nursing and medicine.

Throughout the book, emphasis has been placed on the fundamental laws of chemistry in order to discourage the student's unthinking memorization of isolated facts. In presenting his material, the author

has followed four rules—make the wording clear and simple; eliminate unnecessary detail; point out the significance of facts; stress their applications. By this method, subjects are made to appear as simple as possible, yet they lose none of their meanings. Exercises and questions have been placed at the end of each chapter to aid both student and teacher.

Science is recognized as being of vital importance in today's world. This chemistry textbook, designed both to excite the student's interest and stimulate his thought, stresses that importance.

NUTRITION FOR PRACTICAL NURSES, by Phyllis S. Howe, B.S. Published by W. B. Saunders Co., Philadelphia and London. 1958. Pp. 219. Illus.

Interesting and useful, this manual presents the basic principles of nutrition and dietetics. The book is divided into three sections — "Normal Nutrition" (providing information on food elements and their relation to the body), "Diet Therapy" (describing various diseases and the foods which are beneficial in their treatment), and "Selection and Care of Food" (listing important facts about different types of food). Tables have been included to provide comprehensive information on various subjects. One very interesting and informative chapter deals with "food misinformation". It lists a number of common misconceptions about food—*e.g.*, fish is brain food, toast has fewer calories than bread—and then offers the scientific fact.

Expanded and rewritten in its second edition, this little manual still keeps its explanations as brief and as simple as possible. In this way, it covers a vast field and succeeds in offering much information to the practical nurse.

DIETETIQUE THERAPEUTIQUE, par J. Trémolières, A. Mossé et L. Delbès. Édité par G. Doin & Cie., Paris, France, 1958. Pp. 555. 6,500 francs (\$18.00 environ).

Ce manuel est destiné aux médecins et aux diététiciennes. Chaque sujet est traité à la fois sous son aspect physio-pathologique, clinique et diététique pratique. Des recettes permettant une application acceptable des régimes sont présentées. Les données physio-pathologiques dégagent l'intérêt fondamental.

(concluded on page 159)

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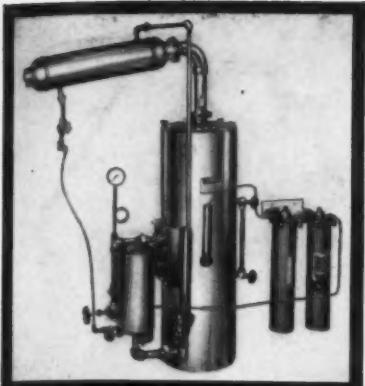
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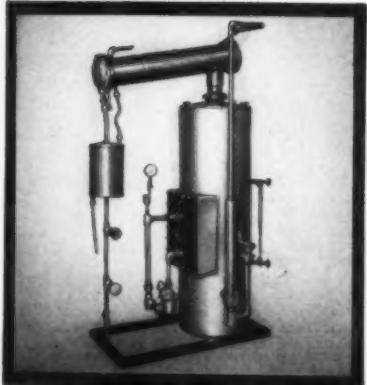
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Book Reviews
(concluded from page 157)

tal des régimes proposés, alors que la clinique en permet une application judicieuse.

Les sujets traités comportent: l'obésité, les maigreurs, les dénutritions; la diététique chirurgicale, celle de l'asystolie, de l'hypertension, de l'artériosclérose et de l'hypercholestérolémie, des cirrhoses, des néphrites chroniques, des affections gastro-intestinales, du diabète; la régime du tuberculeux en sanatorium; les alimentations parentérale et par sonde, les régimes liquides; sans résidus; hyperprotéiques; hypoprotéiques; hyperlipidiques désodés.

Enfin, une histoire de la diététique permet une réflexion sur la nature de cette thérapeutique. Une table de composition incluant la teneur en Na, en K, en aminoacides, en acides gras essentiels, en cholestérol termine ce manuel, qui est le fruit de l'expérience des groupes de diététique de l'Hôpital Bichat et de l'Hôpital Saint-Antoine, en France.

"Gateways to the Mind"

Experiments by Canadian doctors on the human senses will be shown on television November 2 when the Trans-Canada Telephone System's latest science series production — "Gateways to the Mind"—is telecast over the CBC. The film has been designed to help interest young people in scientific careers.

During the course of the film, Dr. Wilder G. Penfield of the Montreal Neurological Institute will discuss what he found out when, for operations on the cortex of the brain, the surface of the temporal lobe was stimulated with an electrode. Moments from the patients' pasts—so real and immediate that they appeared to be experienced for the first time—were revived. Another experiment conducted at McGill University proved that man cannot live without stimulation of his senses. Volunteers cut off from this stimulation in soft clothes and sound proof boxes could stand it no more than 48 hours, and suffered dreadful hallucinations. "Gateways to the Mind", tracing man's knowledge of the human senses from Aristotle's time to our own, promises to be an interesting, exciting television feature.

ROYAL VICTORIA HOSPITAL SCHOOL OF NURSING

MONTREAL, QUEBEC

Postgraduate Courses

1. (a) Six month clinical course in Obstetrical Nursing.

Classes — September and February.

(b) Two month clinical course in Gynecological Nursing.

Classes following the six month course in Obstetrical Nursing.

(c) Eight week course in Care of the Premature Infant.

2. Six month course in Operating Room Technique and Management.

Classes — September and March.

3. Six month course in Theory and Practice in Psychiatric Nursing.

Classes — September and March.

Complete maintenance or living-out allowance is provided for the full course.

Salary—a generous allowance for the last half of the course.

Graduate nurses must be registered and in good standing in their own Provinces.

For information and details of the courses, apply to:

Miss H. M. Lamont, B.N.
Director of Nursing,
Royal Victoria Hospital,
Montreal, P.Q.

Federal Grants
(concluded from page 106)

this investigation, it is hoped to establish the relationship of personality and somatic factors to cholesterol metabolism, thereby increasing knowledge of the rôle of these factors in control of the blood lipid level.

More than \$46,400 has been earmarked for the Notre Dame de la Garde Hospital, Cap aux Meules, Magdalen Islands, to help meet the cost of technical equipment to improve diagnostic and treatment

services. This hospital has about 100 beds and serves more than 11,000 people in an isolated part of the province.

A grant of \$21,200 will help meet the cost of diagnostic x-ray equipment at the Notre Dame de Charny Hospital, Charny, Que.

Education

More than \$11,000 has been granted to Quebec in support of the School of Hospital Administration, L'Institut Supérieur d'Administration Hospitalière, University of Montreal. It is hoped that this

assistance will aid the school in maintaining and expanding its enrollment to help meet the need for over 300 well-trained, French-speaking hospital administrators in Quebec.

The St. Sauveur Hospital, Val d'Or, Que., will receive about \$2,600 toward the purchase of technical equipment for its school for nurses' aides.

Mental Health

A grant of about \$10,500 has been awarded to Notre Dame Hospital, Montreal, in support of a research project to investigate psychiatric aspects of Parkinson's disease. The project will be concerned with the study and evaluation of the psychological effects of new surgery procedures, and with the problems of family life and rehabilitation of patients suffering from this disease. The money will be used to pay salaries, purchase necessary equipment, and meet related expenses.

Federal mental health grants of more than \$42,000 have been awarded to help meet the cost of establishing psychiatric units in the Kingston General Hospital, Kingston, Ont. and the Brantford General Hospital, Brantford, Ont. The money going to the Kingston General Hospital will aid in establishing out-patient and day psychiatric services by helping with the cost of staff services, technical equipment and supplies. A 40-bed unit, now under construction, will house the out-patient, in-patient and day hospital psychiatric services which will be integrated into the total psychiatric services of the hospital. At Brantford, a \$10,940 grant will assist in establishing a 24-bed psychiatric unit.

Federal assistance of \$12,779 will go to a mental health clinic in Edmundston, N.B. The grant will be used in the payment of salaries and in purchasing necessary equipment needed to improve the mental health services to the northern part of the province where these facilities have not been previously established.

Medico-Legal Problems

(concluded from page 154)

publicity for your hospital which invariably accompanies them. In law, as in medicine or any other field, it saves time, money and trouble if you can prevent problems arising. Think of preventive law just as you think of preventive medicine.

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STAINLESS STEEL
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Snugly-covered jar for applicators and depressors. Made of heavy gauge, long-life unbreakable stainless steel with gleaming bright, highly polished finish. Diameter 3½ inches. Overall height 6½ inches. Handy to use, easy to clean and keep clean.

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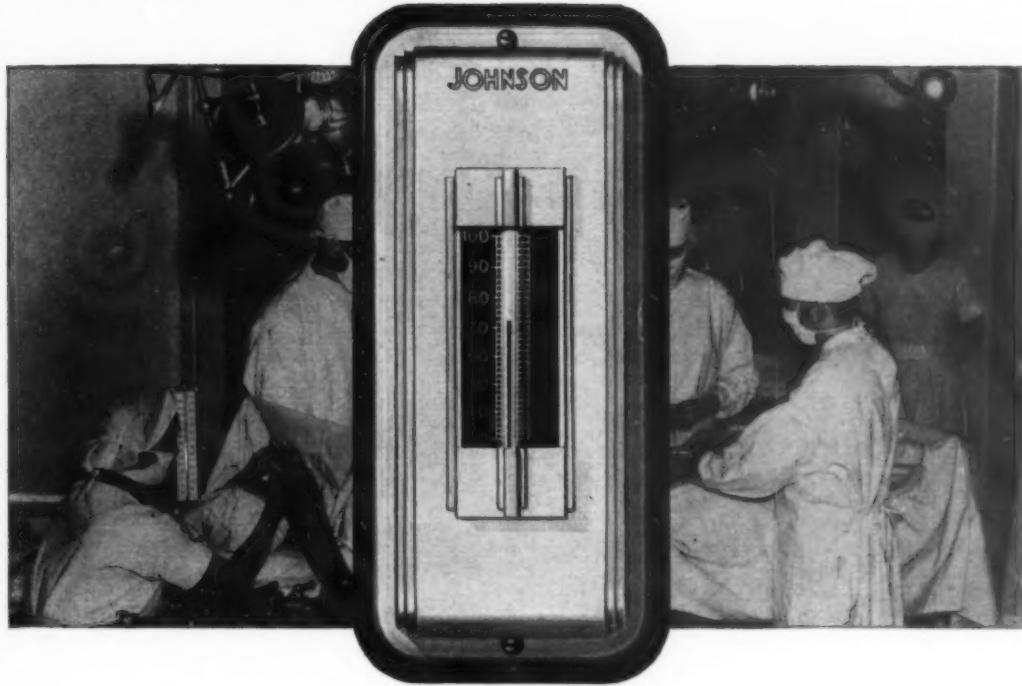
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Number	Capacity
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8803	3 qt.
8804	4½ qt.
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8808	8 qt.



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An optimum thermal environment may safeguard a patient's life. It helps shorten recovery periods, protects vital research processes, saves valuable staff time and reduces heating and cooling costs substantially!

A Johnson Pneumatic Temperature Control System with *individual room* control can bring these benefits to your hospital. Only a pneumatic control system can meet the diversified temperature and humidity requirements of the modern hospital and do it so simply, safely and economically.

Pneumatic control is far easier, less costly to operate, yet offers complete flexibility to meet every need. It's safe under all conditions—*even in the presence*

of anesthetic gases. Upkeep is less, too—pneumatic control components outlast all other types. And only pneumatic controls can be used effectively with all types and makes of heating, cooling and ventilating systems.

Let Johnson help improve the efficiency of your hospital by installing a control system that will assure you of an ideal thermal environment. A nearby Johnson engineer will welcome the opportunity to discuss with you, your consulting engineer or architect the control system best suited to your particular needs. Johnson Controls Ltd., Toronto 16, Ontario. Direct Branch Offices in Principal Cities across Canada.

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GROWING WITH CANADA SINCE 1912



... Across the Desk

News Released by Hospital Supply Houses

By C.A.E.

Clay-Adams Appoints L. B. Niccum

Harry Roth, president of Clay-Adams, Inc., New York, has announced the appointment of Leonard B. Niccum as general sales manager.

Mr. Niccum has served as national director of sales and advertising for several leading companies in the pharmaceutical and hospital fields. Among the companies with which he was associated were Pitman Moore, and the Maltbie Laboratories Division of Wallace & Tierman, Inc. At Maltbie, in addition to his position as director of sales and advertising, he was a member of the board of directors.



L. B. Niccum

With a broad background in field selling, sales administration, sales training, advertising and promotion, Mr. Niccum brings many years of well rounded experience to the administration of the company's comprehensive sales program.

Simpson Appointment

G. Allan Burton, vice-president and managing director of Simpson's, Limited, has announced the appointment of L. E. Wicklum as general manager of the company's contract division.



L. E. Wicklum

Earle Wicklum has been with Simpson's contract division for the past ten years and has been responsible for the establishment of its branches across Canada. Born in Hamilton, he held an executive position with one of Canada's largest pharmaceutical firms prior to his association with Simpson's.

Production Space Upped 50% By Dixie In Brampton

The completion of a \$400,000 addition to its Brampton, Ontario, plant has been announced by the Dixie Cup Company (Canada) Limited. The addition increases the manufacturing area by 50 per cent,

and doubles the office space. The plant addition is of structural steel frame, with insulated steel roof deck, masonry walls and concrete floors. The new manufacturing area is fully covered with automatic sprinklers. The office space is air conditioned.

The company also has installed at the plant a 75,000 gallon gravity water tank in the form of a giant Dixie Cup.

Custom-Made Surgeons' Gloves Offered By Pioneer

As part of its complete hand protection program for the medical field, the Pioneer Rubber Company of Willard, Ohio, provides a custom order service through its surgical glove division. Doctors with unusual fitting problems are able to obtain especially-made gloves



that provide freedom of movement and maximum sensitivity despite the unique size or shape of their hands.

These custom surgical gloves can be ordered through Pioneer's regular sales representatives. Special ceramic moulds are made from outline drawings of the doctor's hands. The glove are then made on these moulds which are labeled with the name of the physician and kept in file for his sole use. There is a fee for the design and preparation of the special mould.

Usually two dozen or more gloves are ordered at a time so that the surgeon might have a sufficient supply for his use. Pioneer charges its regular price for these custom made gloves.

In addition to its custom order service, Pioneer offers surgical gloves made of neoprene for physicians who suffer from allergies to

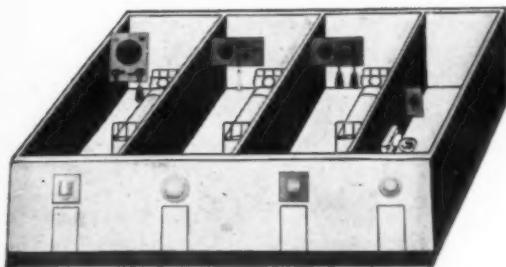
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1958**

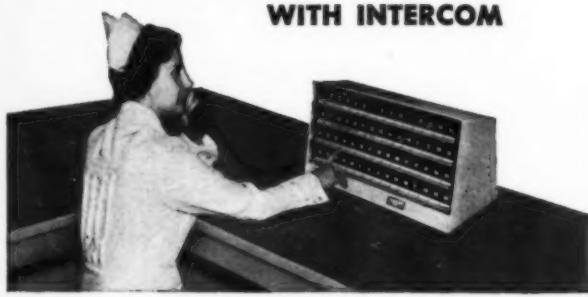


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Combines reliability with safety, advanced engineering with simplicity in the most up-to-date signaling and communication system for hospitals.

Its features:-

VOICE COMMUNICATION
LIGHT SIGNALING SYSTEM
EMERGENCY SIGNALING SYSTEM
GENERAL SAFETY FEATURES

The Electro-Vox Audio-visual Nurses' Call system is the outcome of 25 years experience in equipping hospitals throughout the country. It is designed specifically for the stringent requirements of 100% RELIABILITY, SAFETY and EFFICIENCY essential in hospitals.

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Fluoroscopy	X-Ray Accessories
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Toronto 17
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**8525 Decarie Blvd.,
Montreal,
Tel. RI. 4-5871**

Across the Desk
(continued from page 162)

latex. The range of sizes of Pioneer's surgical line has recently been increased so as to provide gloves for doctors and nurses with unusually small hands.

Big Beam "Mounty" Hand Lamps Now Available

"Mounty" is the name chosen for a battery mounted electric hand lamp, newest in the Big Beam line. Two models are being offered, the 664 which has a sealed beam bulb and two-position red-flasher, is listed at \$9.95 (U.S.A.) without battery and the 666 with sealed beam white light only, is listed at \$7.50 (U.S.A.) without battery. Both are rated at 40,000 candlepower. Heads are constructed of heavy-gauge chrome plated steel and mount easily with two finger-grip nuts which screw onto the battery terminals. They will fit any standard six-volt twin-pack self-contained battery case. Waterproof switches and sturdy construction make them ideal for use for hospital engineers, housekeepers, nurses and others. Can be had with or without batteries. Batteries are \$2.45. (Prices slightly higher in Canada.)



Also available are Big Beam automatic emergency lights for hospitals, powered by dry cell batteries, or six-volt glass jar storage batteries. Full information available from Bernard Marks & Company Limited, 70 Claremont Street, Toronto.

New Approach to Sanitation Described By Airkem

"The New Dimensions of Modern Environmental Sanitation" is the title of a 44-page book published by Airkem, Inc. The publication

is directed to the professional man who is concerned with both the theory and practice of sanitary maintenance of large buildings, and especially hospitals. It is detailed and thorough in explaining the rôle of the modern cleaning agent.

The new publication was prepared by the research and sanitary standards staff of Airkem, Inc., with an emphasis on a step-by-step description of what is required for maximum sanitation results. The premise which guides the development of the text is that three elements are needed for an adequate environmental sanitation program: (1) cleaning (2) sanitizing and (3) odour control. These terms and just what constitutes a modern product to do the task are fully explained.

Among the subjects discussed are the advantages of synthetic detergents over soaps, detersity, rinsing, "metallic plates", chelating agents and alkalinity of detergents. Sanitizing properties, phenol co-enzymes, quaternary agents, odour control and odour counteraction are also discussed. In addition, detailed material on the effectiveness of Airkem A-3, a modern sanitation product, against various bacteria, fungi and protozoa are stated.

Copies are available to qualified personnel by writing on their letterheads to Airkem Sales & Service, Toronto 18, Ontario.

Hausted Safety Side Bed Rails

Now available in the Hausted line of hospital equipment is this all new permanently attached safety bed rail. This extremely rigid rail can be easily installed on 90 per cent of today's hospital beds, providing adequate safety for patients.



When in storage, the bed rail is completely out of the way and yet ready to be pulled up and into position for immediate use. There are rail locks for added safety.

Further details are available from Hausted Manufacturing Company, Medina, Ohio.

Cutter R-Gene is New Intravenous Solution

Cutter Laboratories, Berkeley, California, pharmaceutical firm, announce the availability of a new intravenous solution of 5 per cent L-arginine monohydrochloride in water. This new Cutter product, with the trade name, R-gene, is effective in treating hepatic coma which results from failure of liver function. In extremely serious conditions, R-gene acts by removing excess toxic ammonia from the blood. Liver failure and hepatic coma may be the result of alcoholism, malnutrition, poisoning, or infectious jaundice as well as other causes.



Extensive laboratory and clinical studies have been conducted to prove the effectiveness of R-gene in treating hepatic coma. Since Drs. H. A. Harper and J. S. Najarian, of the University of California School of Medicine in San Francisco, first discovered its use, other investigators have used this compound with successful results.

New Vascular Prostheses of Teflon (R)

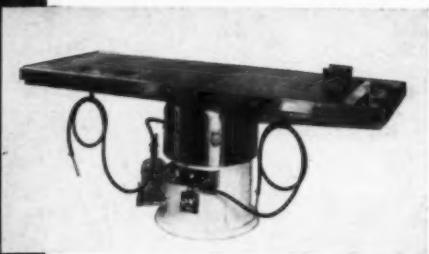
Improved arterial grafts with features long sought by the surgical profession are now made possible through the use of Teflon, a synthetic fiber with properties of such chemical resistance, inertness and durability that chemists have called it "dragon fur".

As an example of its indestructible qualities, Teflon fiber can be boiled in a mixture of sulphuric, nitric, and hydrochloric acids, all concentrated, for 24 hours at 212° F. with no loss of tensile strength—a treatment that not even pure platinum could withstand.

(concluded on page 166)

Designed to meet Pathologists' exacting requirements...

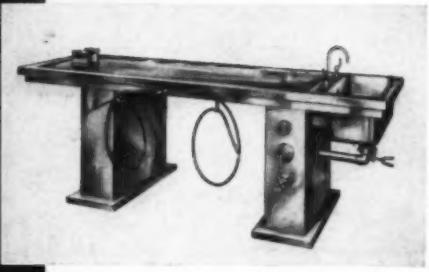
AUTOPSY AND DISSECTING TABLES OF STAINLESS STEEL by MARKET FORGE



Model 45-5100 The Boston

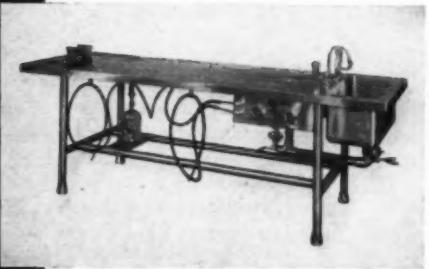
- Stainless steel construction
- Central sanitary base — rotates full 90°
- Complete with flexible rubber hose for irrigation, water-powered aspirator with hose and 2-liter graduated bottle for suction purposes, and rubber headrest
- Removable perforated panels
- Concealed piping

Also Available with Hydraulic Vertical Lift



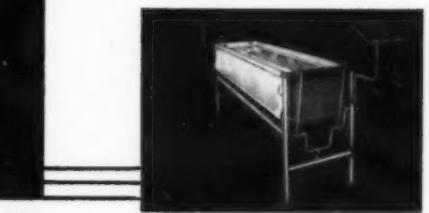
Model 45-5200 The Miami

- All stainless steel construction
- Solid top and integral sink mounted on two pedestals
- Top pitched to foot-end strainer drain
- Sink has knee-operated waste control valve, hot and cold water valves connected to single spout.
- All piping concealed
- Complete with flexible rubber hose for irrigation, water-powered aspirator with hose and 2-liter graduated bottle for suction, and removable hard rubber headrest



Model 45-5300 The Cambridge

- Combines quality, convenience and minimum cost
- Stainless steel construction
- Solid top with integral sink
- Top is pitched to foot-end strainer sink
- Knee-operated waste control valve, hot and cold water valves connected to single spout
- Complete with flexible rubber hose and nozzle for irrigation, water-powered aspirator with hose and 2-liter bottle for suction, and removable hard rubber headrest



**Model 45-5500
The New York Dissecting
Table**

- Stainless steel construction
- One of large group of designs regularly manufactured to order.

Market Forge specializes in the manufacture of Dissecting Tables to the custom specifications of schools and hospitals



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THE STEVENS COMPANIES

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Across the Desk
(concluded from page 164)

The Bard—U.S.C.I. prostheses made of this remarkable material are completely inert, with low tissue reactivity; and their retention of strength with age exceeds that of any other known graft, natural or synthetic. The grafts are produced with a controlled degree of porosity so that they become a matrix embedded in surrounding tissue; further, fibrin's acceptance of Teflon results in rapid formation and good adhesion of the fibrin lining.



Uniform crimping gives these seamless, non-kinking tubes longitudinal elasticity and greater flexibility. They are easily cut and sutured without fraying or raveling; no heat sealing is required. Of special advantage, Teflon's high abrasion resistance insures against any fibers cutting each other when the implant is repeatedly flexed.

Developed by the United States Catheter and Instrument Corporation in co-operation with W. Sterling Edwards, M.D., these new arterial grafts are available in both woven and knitted fibers in a wide range of sizes, and are distributed by C. R. Bard, Inc., Summit, New Jersey.

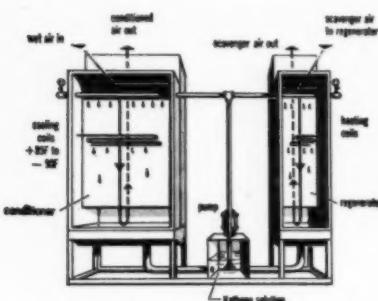
Kathabar Equipment Controls Humidity

A group of specialists in the Kathabar Division of Surface Combustion Corporation have spent a lifetime of research and field experience at solving humidity problems. They have proved, in over 700 installations, that humidity can be controlled as precisely as temperature, with production increases and savings that are often dramatic, always significant.

One of the common applications for the Kathabar equipment is the

elimination of frost on cooling coils where it is necessary to deliver the air at a temperature below 32° F. This characteristic has made Kathabar systems popular where a very high sanitary condition completely free from bacteria and mould in the air must be maintained. Installations of this type have been in continuous operation for years without a single shut-down for defrosting. The Kathabar equipment has completely eliminated the need for defrosting of coils.

The Kathabar equipment is now available to replace humidifiers in, for example, food plants and hospitals. Checks made by bacteriologists show that humidifiers are one of the worst contributors to the high population of organisms in the air.



Complete information on Kathabar equipment is available from Control and Metering Limited, 305 Kipling Avenue South, Toronto 14.

Folder Describes Transaver Stretcher System

The Transaver Stretcher System is described and pictured in a new 6-page folder. Now used in over 150 hospitals, this system is designed for the safe transportation of stretcher patients.

Designed and tested by the chief radiologist of a well-known hospital, this system eliminates unnecessary and dangerous handling of trauma cases. The stretcher is moved—not the patient, for all diagnostic procedure, including x-ray examination. It is not necessary to move the patient, even for surgery.

Write for folder on your letter-head to Brooks & Perkins, Inc., 1950 W. Fort Street, Detroit 16, Michigan.

Hospitals Eliminate Scaldings With Hydroguard Control

Hospitals with single-temperature hot water systems can prevent accidental scalding of patients by

installing inexpensive thermostatic water controls.

The controls are mounted on the water lines on the floor below the bathrooms, and are regulated by the hospital engineer. Hot and cold water are blended in the controls and delivered to the tubs at a maximum temperature of 110 degrees F. The nurse or patient can make the water cooler by turning on the conventional cold water valve on the tub, but it is impossible for hotter water to enter the tub.



Information on the Hydroguard is available in Bulletin 366 from the Powers Regulator Company of Canada, Limited, 15 Torbarrie Rd., Downsview, Ontario.

Wash-'N-Dri Is New Ingram & Bell Item

Ingram & Bell Limited announce that they have been appointed Canadian distributors for the professional and hospital type Wash-'N-Dri. This differs from the Wash-'N-Dri currently being sold in retail outlets in that each individually packed, moist antiseptic tissue incorporates 0.042% benzalkonium chloride which leaves a germicidal film on the skin surface.

Wash-'N-Dri enables the hands, face and other body areas to be washed without soap, water or the use of a wash cloth and towel. Hospitals will find Wash-'N-Dri a real time saver for the staff . . . a welcome convenience for the patient. They can be placed in the bedside cabinet for use after the bed pan and urinal . . . on meal trays for a refreshing "after-meal" wash-up and by maternity patients to disinfect the hands prior to infant nursing.

Wash-'N-Dri towelettes are 6" x 8" in size, folded into a 3" x 2 1/4" heat-sealed aluminum foil envelope. Available in boxes of 100 and cases of 1,000 (10 boxes of 100).

A Salute

to our
Canadian Hospitals

Canada may well be proud of her Hospitals and Medical Profession. Our Doctors, Surgeons, Diagnosticians and Research Specialists are world-renowned and our Hospitals are second to none. Year after year these dedicated men and women, together with numerous others who strive to keep our Hospitals functioning smoothly and efficiently, give generously of their time and energies to bring health and comfort to all.

But Canada is growing and in many communities the population has far exceeded its hospital facilities. This has caused a vast expansion in hospital building and modernization through-out the country; it is a colossal task and one which must continue for many years if Canadians are to maintain their impressive record. This they will, for everyone is taking part—from the laity to the most expert. All are helping to break down the barriers of ignorance and disease and thus build a healthier, happier Canada.

This is why we are proud to pay tribute to our Canadian Hospitals and to be one of the many serving their needs.



ESTABLISHED 1923

We wish to welcome the Delegates
to the
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Convention,
to be held at the Royal York Hotel
October 27th, 28th and 29th,
and invite them to visit our
Booth 38.

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